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NOTE ON CERTAIN FACTS OF CEREBRAL AUTOMATISM OBSERVED IN HYSTERIA DURING THE CATALEPTIC PERIOD OF HYPNOTISM.*

SUGGESTION BY THE MUSCULAR SENSE.

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IT is our intention in this note to study the facts of automatism produced in hysteria during the cataleptic period of hypnotism, through the influence of suggestion by the muscular sense. It will, however, first be necessary to explain briefly the principal characteristics of the cataleptic state here referred to, as well as the tests which establish the reality of its existence, and which eliminate every suspicion of cheating or simulation on the part of the subjects experimented upon.

I.

Hypnotism, as observed in subjects attacked with hysteria major (and it is on such subjects that our experiments have been made), might be termed hypnotism major. It is in

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patients of this class that the different nervous states, artificially produced by hypnotism, attain their highest development, and are endowed with their most characteristic attributes. And in the same manner that the study of hysteria major (hystero-epilepsy *à crises mixtes*) can be of great assistance in the comprehension and clearing up of hysteria minor or common hysteria, so the study of facts as precise and as characteristic as are presented by hypnotism major, is destined at a future day to make clear all that totality of facts, more or less vague, and more or less incoherent, ordinarily ranged since the time of Braid, under the denomination of hypnotism. This method of treating the subject is no more nor less than the special application of that great law (so fruitful in the study of the natural sciences in general), which requires that we should apply ourselves at first to the most complete types of disease, and should eliminate modifications which occur and which constitute more attenuated and rudimentary forms. It is in this manner only that the study of these forms, thus rendered simpler and more comprehensible, will be finally accomplished.

Numerous observations have led us to the conclusion that hypnotism thus viewed in subjects attacked with hysteria major, or otherwise speaking, hypnotism major, does not alone consist in a nervous condition, artificially provoked, always identical and consistent, but that it represents as well an entire group of diverse nervous states, differing the one from the other, each one of these states exhibiting a particular symptomatology. These different nervous states whose totality comprises the entire symptomatology of hypnotism should be reduced to three fundamental types, which are: the cataleptic state; the lethargic state; the somnambulic state.

The cataleptic state, concerning which we here specially



Fig I.
Cataleptic State of Hypnotism



Fig. 2.
Astonishment

treat,¹ may manifest itself primitively, under the influence of a loud and unexpected noise, a light placed before the face, or in certain subjects, in consequence of the more or less prolonged fixation of the eyes upon any object whatever. It is developed consecutively to the lethargic state when the closed eyes are exposed to the light by raising the eyelids. Immobility may be said to be the most pronounced characteristic of the cataleptic state.

The cataleptic, even though placed standing and in a forced attitude, preserves a perfect equilibrium and appears as if petrified. The eyes are open, the gaze fixed, the physiognomy impassive ; and, since the eyes wink but infrequently, the tears accumulate and soon trickle down the cheeks. The respiratory movements themselves partake of this immobility. The pneumographic tracings indicate long pauses, represented by horizontal lines which intervene at wide intervals between shallow depressions.

The members, and the same may be said of all the parts of the body, preserve without apparent fatigue during a relatively very long time, positions, even the most difficult ones, that may have been communicated to them. When they are raised or moved they seem to be very light, and even if they are flexed or extended the articulations offer no sensation of resistance. Contrary to the assertion of a great number of authors, the *flexibilitas cerea* does not belong to the cataleptic state of hypnotism.

The tendinous reflexes are abolished or very notably diminished. The phenomenon of neuro-muscular hyperexcitability, which characterizes the lethargic state and upon which we have insisted at length elsewhere,² is here completely absent.

¹ We have given elsewhere the detailed description of these three nervous states. Vid. *Charcot* : Note lue à l'Académie des Sciences, séance du 13 Février, 1882. Vid. *P. Richer* : "Études cliniques sur la grande hystérie," page 408 et suiv.

² Vide *Archives de neurologie*, Nos. 5, 6, 8.

The skin remains insensible to the most severe irritations; but certain senses—sight, hearing in particular, the muscular sense even, preserve, at least in part, their activity.

This persistence of sensorial activity often allows us to create impressions upon the cataleptic subject, and to arouse automatic impulses in him by suggestion.

Then the fixed attitude, into which the members have been artificially placed, gives place to movements more or less complex, and perfectly coördinated to the nature of the impulse that has been provoked.

It is upon a category of automatic acts of this class, awakened only through the intermediation of the muscular sense, that we shall dwell here.

But in order that no doubt shall remain in the reader's mind regarding the reality of the cataleptic state which serves as a basis, so to speak, for the facts of automatism here brought forward, we will now briefly report the tests to which we have submitted the subjects upon which we have experimented.¹

It is generally believed that if in a cataleptic subject the arm is extended horizontally, it will maintain this position during a time in itself sufficiently long to preclude all suspicion of simulation. According to our observation, this is not exactly the case; at the end of from ten to fifteen minutes the member begins to descend, and at the end of from twenty to twenty-five minutes, at the most, it resumes the vertical position.

Now these are the limits of endurance to which a vigorous man, endeavoring to preserve the same position, will attain. We must, then, look elsewhere for a distinctive characteristic, and to accomplish this object we have resorted to the plan of recording the phenomena by the graphic method.

In the case both of the simulator and of the cataleptic,

¹ Vide *Progrès médical*, No. 18, Année 1882.

the extremity of the extended member is attached to a tambour, whose object is to register the smallest oscillations of the member, while at the same time a pneumograph applied to the chest (fig. i) gives the curve of the respiratory movements.

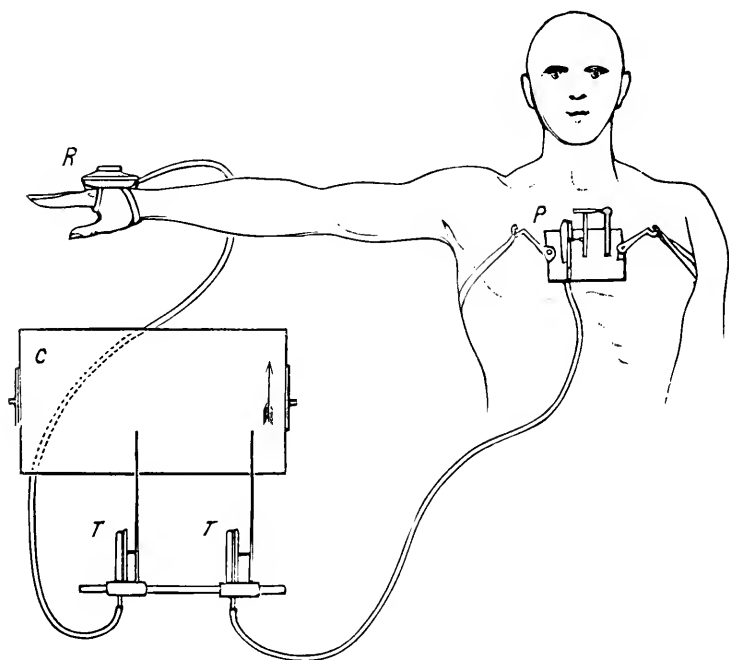


FIG. 1.—Diagrammatic representation of the arrangement of the apparatus in experiments upon cataleptic immobility. *R*, Marey's tambour. *P*, Pneumograph. *C*, Revolving cylinder. *TT*, Recording levers.

The following is a summarized statement of what may be observed by an examination of the tracings obtained by this arrangement.

In the case of the cataleptic, during the entire duration of the observation, the lever which corresponds to the extended member traces a straight and perfectly regular line (fig. 2, II).

During the same time, in the case of the simulator, the tracings at first resemble those of the cataleptic, but, at the

end of a few minutes, very considerable differences begin to make their appearance: the straight line changes into a line sharply broken and characterized by instants of large oscillations arranged in series (fig. 3, II).

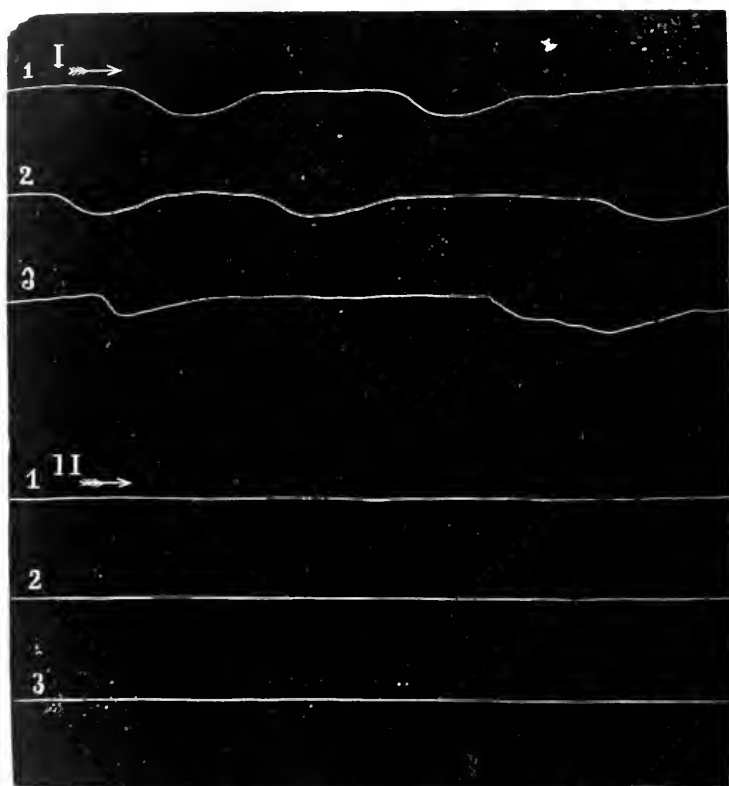


FIG. 2.—Diagrammatic representation of the tracings obtained in the case of a hystero-epileptic in the cataleptic state of hypnotism.

I.—Tracings of the pneumograph.

II.—Tracings of Marey's tambour.

The tracings furnished by the pneumograph are equally significant. In the case of the cataleptic, the respirations are infrequent and superficial, the end of the tracing resembling the beginning (fig. 2, I). In the case of the simulator, the tracings are composed of two distinct portions.

In the beginning the respiration is regular and normal. In the second phase, that which corresponds to the indications of muscular fatigue noticed in the tracings of the extended member, there may be observed irregularity in the rhythm and amplitude of the respiratory movements, deep and rapid depressions, indicative of the disturbance of respiration that accompanies the phenomena of effort (fig. 3, I).

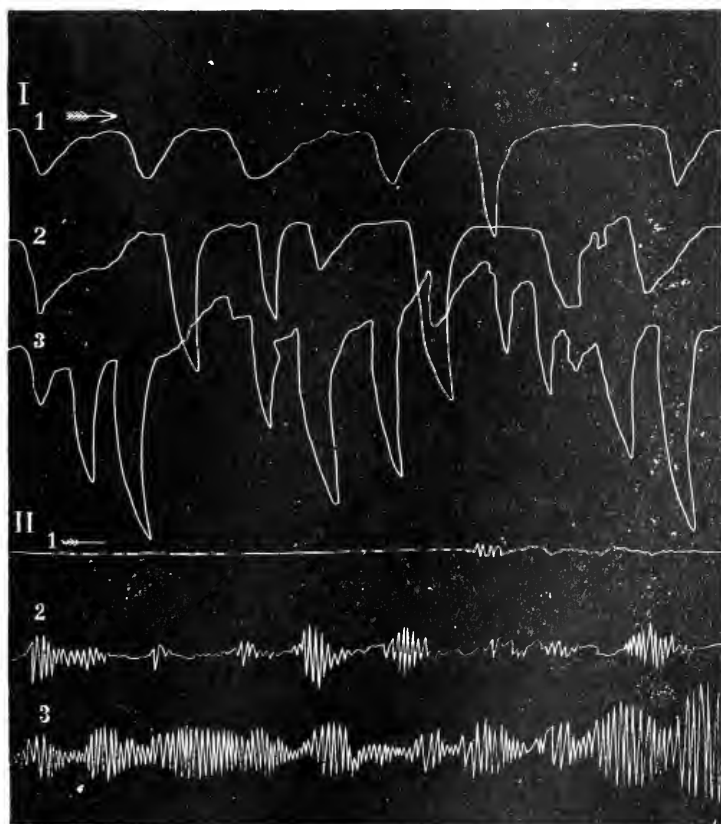


FIG. 3.—Diagrammatic representation of the tracings obtained in the case of a man who attempted to maintain the cataleptic attitude.

I.—Tracing of the respiration.

II.—Tracing of Marey's tambour.

In short, the cataleptic gives no evidence of fatigue, the muscles yield, but without effort, and without the concurrence

of the volition. The simulator, on the contrary, submitted to this double test, finds himself betrayed from two sides at the same moment: 1st, by the tracing of the member, which indicates muscular fatigue; 2d, by the tracings of the respiration, which express the effort devoted to masking the effects of this muscular fatigue.

II.

In the facts of cerebral automatism, which we shall now treat of, suggestion was obtained through the intermediary of the muscular sense.

The examples that we must first recall were those observed at the very outset of our investigations into the nature of hypnotism. They consisted in the influence of gesture upon the expression of the face. While the subject is plunged in the cataleptic state, the eyes remaining open, the face does not remain indifferent, whatever attitudes the body may be caused to assume. When these attitudes are expressive, the face acts in harmony with them, and is consistent with the expression. For instance, a tragic attitude imparts a severe air to the physiognomy, and the eyebrows contract; on the contrary, if the open hands are carried to the mouth, as in the act of throwing a kiss, a smile immediately appears upon the lips.

In these two examples, which are instances of two sentiments opposite and easy to characterize, the reaction of the gesture upon the physiognomy is very striking, and is produced with the greatest clearness. But perfectly expressive movements are difficult to impart to a mannikin, however docile it may be, and the number of communicable attitudes fully adequate to express a given sentiment or feeling is relatively restricted.

For these reasons we conceived the idea of proceeding in an inverse manner, and, in place of acting upon the atti-

tude to modify the physiognomy, we have sought for the influence of the physiognomy upon the attitude. For the purpose of imparting to the physiognomy a variety of expressions, the means were discovered, and the way opened by an expert experimenter. We resorted to localized faradization of the muscles of the face, according to the process employed by Duchenne (of Boulogne) in his excellent studies upon the mechanism of the physiognomy. (It should be remarked that electrization applied to the face of a hypnotized subject does not in the least modify the nervous state that exists. The cataleptic state is in no wise interrupted by the electric application, while on the contrary it is well known that a very slight breath against the face is sufficient to dissipate this state, on the instant.)

Beginning with our very first experiments, we saw the attitude and the appropriate gesture succeed to the expression imparted to the physiognomy by the electric excitation. In proportion as the movements of the features became marked, the entire body, spontaneously as it were, entered into action, and completed by its attitude the expression of the face; when by reason of uncertainty in the operative proceedings the physiognomy did not give clear indications, the attitude or gesture remained undecided.

Once produced, the change imparted to the features of the face did not become effaced, in spite of the cessation of the cause that had begotten it, and after the removal of the electrodes. The physiognomy remained immobile, in a state of catalepsy. The same is true of the attitude and the gesture that accompanied it. The subject is thus transformed into a sort of expressive statue, a motionless model, representing with striking accuracy most varied expressions, which artists, without doubt, might avail themselves of to a very great extent. The immobility of the attitudes thus provoked is eminently favorable to photographic reproduction.

We have obtained, with the aid of M. Londe, in charge of the photographic department at La Salpêtrière, a series of photographs, several of the most interesting of which we here reproduce, and concerning which we will remark that they were all taken during the first experiments attempted for this purpose on this patient.

Figure 1 represents the patient in the cataleptic state. She was placed in this inexpressive attitude at the beginning of each one of the experiments that follow.

1. If the two occipito-frontal muscles are excited by the faradic current, by placing an electrode at the level of each one of the two, the forehead at once wrinkles transversely, the eyelids are raised, the palpebral opening enlarges a little, the eye becomes fixed ; in a word, the physiognomy assumes the expression of astonishment, according to the rule established by the remarkable researches of Duchenne (of Boulogne). But this is not all—the expression thus imparted to the face by the contraction of a single muscle goes on to complete itself. The mouth opens lightly, though the depressor muscles of the lower jaw are not touched, and the arms are raised in semiflexion—the palm of the hand directed forward, as represented in fig. 2.

Once produced, this attitude persists indefinitely, and the subject, continuously cataleptic, will not abandon the position, except for some other that may be imparted to her. For instance, if we lower the arms and place them vertically alongside the body, as in figure 1, the physiognomy again becomes expressionless. Thus, in this experiment the reciprocal influence of attitude and of the physiognomy is successively exercised in opposite ways. In the first place, it is the physiognomy which induces the gesture intended to complete the expression which the physiognomy indicates, and then it is the gesture or attitude which, having



Fig. 3.
Anger.

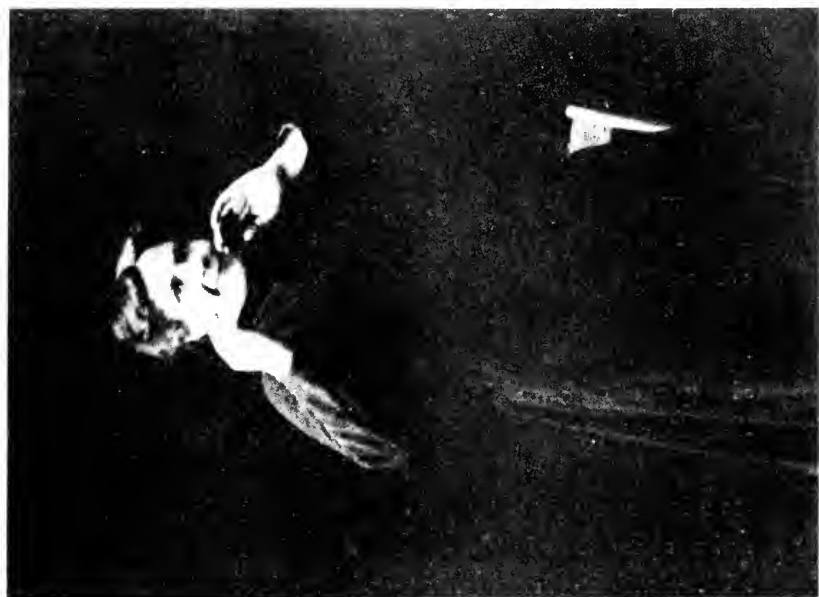


Fig. 4.
Laughter

been rendered inexpressive, reacts upon the physiognomy, which loses at the same moment its former expression.

We know that the contraction of the orbicularis palpebrarum superior is characterized by a transverse corrugation of the eyebrows expressive of anger. As soon as we have caused this to contract in our cataleptic subject, the physiognomy assumes the expression indicated, and at the same time the fists clench, and the arms assume a fixed position of aggression and defence. (*Vid.* fig. 3.)

If the corrugator supercilii is caused to contract, pain is depicted in the physiognomy and in the gesture of the subject.

The same holds true of the zygomaticus major, the muscle of laughing (*vid.* fig. 4); of the levator communis labii superioris alæque nasi, the muscle of disdain; and of the depressor anguli oris, the muscle of sadness.

The same is true of those expressions which, in order to be complete (according to Duchenne), demand the simultaneous contraction of two facial muscles. For instance, the expression of horror is obtained by the simultaneous contraction of the occipito-frontalis and of the platysma myoides. This expression was easily obtained in the case of our patient and it was observed that the attitude was in harmony with the expression. The body is thrown backward, and the hands assume a position of warding off the approach of the object which causes her fright.

But all the subjects upon which we have experimented have not presented an equal development of the phenomenon. We have been able to observe it very clearly upon four hysterical patients in our service, but in different degrees.

It must be added that these automatic acts, developed by the influence of excitation conveyed to nervous centres by means of the muscular sense, are up to a certain point sus-

ceptible of education. Like all the reflex acts in general, they are perfected by repetition, a fact which is commonly termed habit.

In cases little developed, the first appearance of the phenomenon offers special points of interest. The expression given to the physiognomy by the electric excitation must be prolonged during a considerable period in order to react upon the nervous centre. When the excitations are first applied, no movement of the body is produced. The eyebrow, for instance, contracts energetically, and the face appears to be in a state of excitation, but the rest of the body, by reason of its immobility, does not appear to belong to the same subject. The excitation is then maintained during a certain number of minutes,—a continuous electric action is at this moment essential,—and gradually the fists close, the body bends forward with extended neck, and finally the patient presents a picture of anger which, when the experiment is repeated a second time, will be reproduced more easily and with characteristics still more expressive. It seems, in these cases, that the impression, which takes its starting-point from the muscles of the face thrown into contraction, requires a certain amount of time to create its imprint upon the brain, and to awaken the activity of the automatic centres.

The main interest of the facts which we have described is not that they are singular and unexpected. It lies, on the contrary, in this, that they are intimately connected with the normal action of the nervous system, and their principal merit is to throw into relief, by reason of their isolation, facts whose trace is not difficult to find in the normal state.

The experiments in hypnotism here in question thus become a most beautiful demonstration of the automatic action of a part of the encephalon, an action already

described by the psychologists and the physiologists, and to which has been given the name of cerebral automatism or unconscious cerebration.

Concerning the influence which the expressive movements of the physiognomy or of the entire body may have upon the psychic activity, Dugald Stewart thus expresses himself: "As every motion of the mind produces a sensible effect on the bodily appearance, so, upon the other hand, when we assume any strongly expressive look, and accompany it with appropriate gestures, some degree of the correspondent emotion is apt to arise within us. Mr. Burke informs us that he has often been conscious of the passion of anger rising in his breast, in consequence of his counterfeiting its external signs; and I have little doubt that with most individuals, the result of a similar experiment will be the same. Campanella, too, the celebrated philosopher and physiognomist, (as Mr. Burke further observes,) when he wished to form a judgment of what was passing in the mind of another, is said to have mimicked, as accurately as possible, his appearance at the moment, and then to have directed his attention to the state of his own feelings. In general, I believe it will be found, that these two talents of mimicry and of physiognomy, have a very close connection."¹

¹ "Eléments de la philosophie de l'esprit humain," trad. par Peisse, t. iii, p. 141.

EXAMINATION OF THE SPINAL CORD IN A CASE OF POLIOMYELITIS OF THE ADULT, OF TWO MONTHS' STANDING.

By JAMES J. PUTNAM, M.D.

IT seems to be now almost universally believed that the disease which has become so familiar under the name of poliomyelitis acuta infantum, has its complete analogue among the diseases of the adult spinal cord, but as yet so few autopsies have been recorded in cases of the latter kind, especially such as illustrate the earlier stages of the affection, that no excuse is needed for offering another example here.

Furthermore, it remains to be seen whether in spite of the close likeness between the infantile and the adult form of the disease, there may not be discovered differences between them of sufficient constancy to justify new physiological or pathological generalizations.

Thus, to mention but one point, it appears from the interesting analyses of Franz Müller ("Die acute Spinallähmung des Erwachsenen," Stuttgart, 1880), that it is far more common in the case of adults than in that of children, for the spinal cord to be affected in its whole length, although the greater longitudinal extension of the lesion by no means implies a greater intensity at any given point. Thus, out of 47 cases of the adult form all four extremities were affected in 22 (or about 47 per cent.), while this happened in only 5 out of 62 cases (or 8 per cent.) of the infantile form.

No doubt this difference is partly to be explained by the fact that the term acute poliomyelitis has been made to cover a greater variety of pathological states in the case of the infant than in that of the adult. Leyden, for example, has described at least three quite different forms.

Even though the nature of the disease be well understood, moreover, it is important that we should become familiar with all its stages. I am aware that the microscopic appearances, essentially like those that I shall describe, have repeatedly been observed by others, but the number of cases, even in children, which have been studied at two months after the attack, is not great, and, so far as I know, this is the first case of the kind in an adult, that has been recorded.

The patient whose case is the subject of this paper was a young woman of twenty-two, unmarried, who entered the Mass. Gen. Hosp., in August 11, 1880, and remained until her death (Sept. 26), under the care of Dr. B. S. Shaw, with whom I frequently saw her, and who very kindly allowed me to make the examination of the cord.

Her health before this illness had been good, though she had suffered much from the heat, which had been severe.

No cause could be assigned for the attack, which had occurred three weeks before her entrance to the hospital, except that very shortly before it she had got her feet wet while menstruating, as a result of which the menses had ceased.¹

The first symptoms were said to have been severe pain, in head neck, back, and limbs, and obstinate vomiting, ushered in by a slight chill.

After three days the pain lessened somewhat, but she became rapidly helpless. During the first three days she was unable to pass her urine.

Pain in the shoulders and limbs continued to be a prominent symptom, and she suffered from a wide-spread sense of numbness, prickling, etc., especially in the legs below the knees, and in the right arm.

¹ Some years ago I saw another patient, a woman in perfect health, who after—and presumably as a result of—precisely this same experience, was suddenly seized with paralysis of all four extremities, from an affection of the cervical cord.

At her entrance into the hospital her pulse was 108; temperature, 99.8° (F.); tongue, dry and cracked.

There was marked tenderness along the spine on deep pressure, especially in the dorsal region.

There was more or less atrophy throughout the entire muscular system of the body, but the muscles of the right arm were especially affected, and still more the small muscles of the right hand, which were greatly wasted.

Motion was everywhere impaired, but so much pain was excited by any attempt to move that a thorough examination as to this point was postponed, and no accurate record of it was made.

A few days later, however, it is recorded that no movement of any part of the body was absolutely lost, though from a mixture of pain and weakness she was unable to turn in bed alone, and the right arm was almost helpless.

The motions of the right arm which were most seriously impaired, were abduction at the shoulder, flexion at the elbow, and some of the movements of the fingers. These were in fact almost lost at first. Flexion and extension of the fingers were, however, always possible to some extent.

For the first two weeks, pain in the back, neck, shoulders, and in all four extremities, remained the predominant symptoms. This pain was increased by the slightest motion, whether passive or voluntary, and was a good deal relieved by continuous applications of ice to the spine. The patient lay constantly on the back, and could not bear to have the limbs handled unless with great care. The fingers of the right hand, and the arm at the elbow joint, were kept semi-flexed, and any attempt to extend them fully caused considerable pain, which was referred to the tendons of the muscles which were thus put upon the stretch.

There was also occasional inability to micturate, for a part or the whole of a day at a time.

After a few days the pain began to subside slowly, and at the same time motion began to improve.

There was no high fever, and no motor signs of meningitis beyond the contractures above alluded to, and the fact (probably of no great importance) that the first time she sat up on the edge of the bed she was seized with muscular cramps in both legs.

On Aug. 25th she was reported as gaining daily, and now able to raise the right arm at the shoulder.

Improvement went on in this way so far that the patient was able to sit up, and seemed likely to regain a good deal of the lost

power, when on Sept. 13th the temperature went suddenly up to 102° (F.), and the pulse to 130, though without any symptoms directly referable to the spinal cord, unless some increase of the spinal tenderness and pain, which had been present throughout, be considered as such.

On Aug. 16th she was attacked with persistent vomiting; on the 17th she had two dejections containing a considerable quantity of fluid blood.

The vomiting was so persistent, that an attempt was made to give all nourishment by the rectum, except a little brandy or champagne and ice. Beef tea, or milk, with a little opium, was accordingly administered in this way, and at first some of the injections were retained.

On Sept. 20th, however, she began to have frequent involuntary dejections, many of them bloody, and to reject the enemas. From this moment her strength failed rapidly.

The mouth and fauces became very dry, and sordes collected on the lips and teeth.

There were no cerebral symptoms, except that for a day or two before death she was nearly unconscious, and mildly delirious.

She died on Sept. 26th.

The temperature, through the first three weeks of the patient's illness, ranged regularly from 98.2° (F.) to 98.8° (F.) in the morning, and 99° to 99.4° in the evening.

The pulse varied between 70 and 85.

At the outset of the new symptoms (Sept. 13th), the temperature rose suddenly to 102° (F.) (evening), fell the next morning to 98.2° ; then rose and fell once more; and finally rose and oscillated between 100.5° and 102° , until two days before death, from which time it fell steadily, finally reaching 98.4° .

The pulse ranged, with great variations, between 100 and 130.

Her condition was such that it would have been difficult to make a satisfactory investigation of the motor functions during the last week, but nothing was seen which suggested any special change in this respect.

The autopsy was performed thirteen hours after death, and the following were the chief points elicited, as copied from the hospital records:

Thorax.—Pericardium contained 40 c. c. of serous fluid. Left side of heart contracted; right side distended with fluid blood. No disease of valves or heart-tissue.

Inspection of the lungs revealed a large number of dark red spots,

scattered over its surface, varying in size from that of a pin's head to that of a silver dollar. When cut into, these spots proved to be hemorrhages beneath the pleura, extending to various depths into the substance of the lung. They were most numerous over the left lower lobe, but there were many on the right lower lobe; several on the left upper lobe, and a few on the right upper lobe.

Abdomen.—All the abdominal organs were healthy, though congested, except the intestine, and this was normal as far down as to the lower part of the ilium. About a foot above the ileo-cæcal valve, the Peyer's patches were found thickened. Below this point the mucous membrane was the seat of numerous small ulcerations and slight hemorrhages, not confined to Peyer's patches.

Throughout the large intestine the mucous membrane was roughened and there were many deep ulcerations, with patches of false membrane adherent to their surface. Some of these ulcerations extended through almost to the peritoneal coat.

Of the nervous structures the *spinal cord* alone was removed and given to me for examination.

The membranes of the cord presented, to the naked eye, no appearance of disease. Cross-sections, made at short intervals throughout its length, showed its substance to be of about normal consistency. Spots of very slight discoloration were, however, visible here and there throughout.

The specimen was hardened in Müller's fluid, and excellent microscopic preparations were obtained a few months later.

Sections were cut at intervals of about three quarters of an inch throughout the whole cord, stained either with picro-carmin, or hæmatoxyline, or by first the one, then the other, which gave the best results, clarified with oil of cloves, and eventually mounted in Canada balsam.

Certain gross lesions were visible on these sections, even with the naked eye.

At about the middle of each anterior cornu a rarefied spot was seen, of irregular outline, sometimes extending in the direction of the central canal, sometimes toward and into the posterior cornu.

In fact the posterior cornu was often involved in its entire length, and the spot of rarefied tissue there appeared in some sections to be separated by a bridge of relatively healthy tissue from the spot in the anterior cornu. In other words, the central portions of the posterior columns had suffered the most severely.

The lesion in the two sides was symmetrical, but the right side was the more severely affected.

The gray matter of the spinal cord was thus threaded in its whole length by these columns of inflamed tissue.

Unfortunately the medulla oblongata had not been removed ; but as the disease was well marked at the upper end of the cervical region, it is not improbable that it extended higher, and perhaps furnished the cause of the subpleural hemorrhages, and indirectly of the patient's death.

The lumbar region was less severely affected than either the cervical or dorsal.

When these sections were examined under a low power it was seen that throughout the most inflamed portions, the ganglion cells were, as a rule, either absent, or represented by pale, rounded bodies, without processes. This was especially true of the right anterior cornu, where in many sections no ganglion cells at all, or only a few degenerated remains, were visible. In the left anterior cornu there were always a greater or less number of ganglion cells present, though often but few or none that were not more or less diseased.

The *groups* of cells in the cervical and dorsal regions, which were relatively well preserved, were the antero-lateral and postero-lateral (Ross) groups in the lower cervical and upper dorsal regions, and a small group seen in a few sections in the dorsal region, a little external to the columns of Clarke.

In the lumbar region, all the great peripheral groups of cells were in a pretty good state of preservation, the inflammation being less severe than in the dorsal and cervical regions, and more nearly confined to the median area of the anterior cornu. The posterior columns, nevertheless, had not escaped their due share of the lesions.

The columns of Clarke themselves, likewise, though by no means unaffected, had been much more spared than most of the rest.

I was unable to verify the statement made by Ross with regard to a more chronic class of cases, namely, that the peripheral ("accessory") cells of the special groups were most affected. As a rule, the degree to which the cells were atrophied depended on their position with regard to the centre of inflammation.

This rule was not invariable, however, and it was sometimes striking to see a fairly well-preserved cell lying close to the inflamed area, and sending its processes, usually pale, and swollen or granular, to be sure, through the midst of the disintegrated tissue.

Even some of the small cells of the "median area" (Ross) were often quite well preserved; and these facts seem to make it clear that this inflammatory process is not one that affects ganglion cells materially more than other tissues in their neighborhood.

The vessels, as seen also with a low power, were deeply congested in the inflamed parts, and indeed throughout the gray matter, and their sheaths often crowded with lymphoid cells. The walls of most of the small arteries of the whole cord appeared thickened.

The exudation of lymphoid cells from a given artery into the surrounding tissue, was by no means proportionate at every point to the degree to which the vascular sheath was filled with them, but seemed to have occurred here and there, forming foci of infiltration.

The central canal was usually blocked with cells, and in some places had lost its form and structure altogether, appearing only as a mass of cells and (under a higher power) a net-work of hair-like fibres, which could be traced to the protoplasm of cells of irregular shape, with which the peri-ependymal tissue was richly supplied.

Although the *acutest* inflammation had been confined to the gray matter, other changes of hardly less interest were observable, even with low powers, in other parts of the cord.

Thus, in many of the preparations, the antero-lateral columns appeared to be peppered with minute spaces of circular shape, in many of which subsequent examination showed the presence of shrunken cells (granular cells?) with or without nuclei.

There was, in fact, no part of the section which did not exhibit more or less characteristic lesions.

There was a pretty general increase of connective tissue, originating: (1) in a dense overgrowth of the tissue entering with some of the anterior, and to a less degree, of the posterior nerve-roots; (2) in the hypertrophied trabeculæ coming from the pia mater; (3) in the tissue surrounding the thickened vessels; (4) in the trabeculæ running out from the framework of the anterior gray matter; (5) in interstitial growth of fibres from Deiters' cells, and from the protoplasm surrounding the free nuclei.

The parts which were the most free from this overgrowth of connective tissue were: the anterior half of the posterior columns in the cervical region, and the posterior and peripheral portions of the lateral columns, except near the posterior nerve-roots.

The parts most diseased were: the whole segment through

which the anterior nerve-roots pass, the region of the anterior pyramid-tract, and portions of the lateral columns.

When examined with higher powers there were evidences of disease, even within the limits indicated, in the form of atrophy and moderate hypertrophy of axis-cylinders, in various degrees.

The minute globular spaces, above referred to as often containing one or more shrunken cells, which were evidently the remains of granular bodies, were seen on several sections in both the anterior and posterior roots, even beyond the limits of the cord.

Such portions of the *nerve-roots* as happened to come within the limits of the sections were all more or less diseased,—the anterior much more than the posterior,—though all contained a certain number of axis-cylinders still capable of taking up coloring matter to some extent.

Occasionally an axis-cylinder was seen in them, which appeared to be increased in size, but this increase was not great, and the outline of such fibres was for the most part nearly uniform. The great majority of the fibres of the anterior roots were very narrow and pale, and the number was much diminished.

The use of the higher powers disclosed also other facts of histological interest.

The degeneration of the *ganglion cells* could be plainly seen in several stages.

Among the slighter changes, *i. e.*, while the cell still absorbed carmine freely, and looked fairly normal in structure—was an alteration in the shape of the nucleus, which had become shrunken and irregular in outline, and had apparently lost its nucleolus. Other cells, which also absorbed carmine, had a mottled, mulberry-like surface, suggestive of “cloudy swelling.”

Those nearest the centre of inflammation were always pale, sometimes excessively so, and had often lost their processes, and become almost indistinguishable. A considerable degree of paleness, however, was not incompatible with the possession of a regularly globular nucleus, and a nucleolus.

Vacuoles in the ganglion cells were observed only once or twice.

The cells of the posterior cornua were less noticeably diseased, but some of them also were pale, indistinct, and granular.

In spite of the diseased appearance of the majority of the remaining ganglion cells, the great amelioration which had taken place in the patient's condition suggests that they may have been capable of functioning to some extent, and this suspicion is in-

creased when we reflect that two months had elapsed, by which time those which were destined to atrophy and shrink, as had happened with some of them, or to be disintegrated, would probably have undergone this change already, and that many of the appearances actually observed were re-gressive in their nature.

Some of the nerve-fibres may also have been newly formed, but it is not certain that the enlargement of the axis-cylinders is incompatible with a power of conduction.

The *vessels* were everywhere thickened, as has been said, and were often the centre of an island of hypertrophied connective tissue, or of a spot of rarefied substance, dotted with minute points (granular degeneration?).

One or two small arteries were seen with collections of shining pigment in their walls, grouped like longitudinal nuclei.

Special interest attaches to the study of the origin of the fine non-nervous filaments, with which almost every part of the section was penetrated.

In the areas of acute inflammation, the true spider cells, with their pale, irregular, and homogeneous bodies, were very abundant, and the fact that they were, at this stage of the disease (two months from the outset), so large and numerous, lends support to Leyden's view, that they have in some way to do with the processes of absorption and repair rather than with that of inflammation (*vid.* a summary of views on this point, by Dr. S. G. Webber, in the Med. and Surg. Reps. of the Boston City Hosp., 3d ser.).

Another observation of Leyden's (Klinik d. R. markskrankh., vol. 1) is pertinent in this connection. It is that a true increase of connective-tissue elements occurs less often and to a less degree than is usually assumed, a good part of the appearances laid to the door of the multiplication of cells being really due to a hypertrophic growth of pre-existing fibres.

Certainly, in this case, neither the increase in the number of the spider cells, nor of the free nuclei or connective-tissue cells seemed great enough to account for the mass of fine fibres to which (presumably) the coarsely granular appearance of the interstitial substance everywhere was due, unless we assume a still greater increase in the length and thickness and number of the hair-like cell-processes.

Some of the finest of these processes evidently arose from the delicate protoplasm surrounding the free nuclei of the neuroglia.

The lymphoid elements from the vessels appeared also to be

taking part in the processes which were going on, inasmuch as they also could be seen to be enveloped in a small quantity of homogeneous protoplasm, with definite outline.

An appearance was also seen which may have indicated a process of division of these growing cells into two, or may have been due merely to the mutual pressure of two adjacent cells. This was a sharp line of demarcation between two cell-bodies, the line sometimes widening into an actual interval.

The globular spaces containing shrunken cells were best seen on longitudinal sections, where they had been formed one above another, between the longitudinal bundles of fibres in the antero-lateral columns. The nuclei of the cells lying in these spaces could sometimes be colored with hæmatoxyline, and this circumstance, coupled with the fact that the cell-bodies were occasionally not shrunken, but pale and homogeneous or granular, led me to think that these cells had resulted from the overgrowth and degeneration of the protoplasmic masses surrounding the free nuclei of the neuroglia.

Similar cells were seen, though rarely, in the inflamed portion of the gray matter. The position in which they were generally found suggested that their development was associated with the destruction of medullated nerve-fibres, as is usually assumed.

In the white columns the condition of the parts was not everywhere the same. Throughout the antero-lateral tract, besides the increase in the connective tissue, and the vacuole-formation, there were signs of both atrophy and moderate hypertrophy of the axis-cylinders, and the same was true of the anterior and lateral portions of the posterior columns in the cervical region.

In the posterior portions of the posterior columns, especially the columns of Goll, there was increase of connective tissue, and a moderate degree of degeneration of the nerve-fibres, chiefly shown by changes in the condition of the myeline.

The bits of *pia mater* which adhered to the cord near the posterior nerve-roots bore marks of moderate thickening, and more or less cellular infiltration.

To sum up the facts of this case: We have here a healthy patient, seized, after an exposure during menstruation, with vomiting and persistent pain, and immediately afterward with wide-spread atrophy and loss of muscular power, these latter symptoms affecting the right arm and hand very much more than any other part of the body.

After six weeks the patient is seized anew with vomiting, and with dysenteric symptoms, loses control of the sphincters, has a very rapid pulse, with considerable fever, and dies with symptoms of prostration after two weeks.

On post-mortem examination there are found: extensive ulcerations in the large intestine; sub-pleural hemorrhages: poliomyelitis anterior and posterior throughout the whole length of the cord, centring in the median area of the anterior cornu, involving the right side much more than the left (in the cervical and dorsal regions); also atrophy of the anterior nerve-roots, and to some extent the posterior; sub-acute inflammation of the antero-lateral white columns; a moderate amount of lepto-meningitis; thickening of vessels everywhere, even in the posterior columns; and diffused, though moderate, increase of the connective tissue.

The signs of connective-tissue change were, in fact, so widespread, that the term poliomyelitis should probably be exchanged for that of diffused myelitis, as in Schultze's very similar case; and it is possible that the original morbid change was one affecting the vessels and the circulation; and that the median area of the anterior cornu suffered so severely, only because especially prone to become inflamed.

The clinical record is not sufficiently minute to justify definite conclusions as to the origin of the symptoms which resulted in the patient's death.

The last illness was evidently no ordinary dysentery, or typhoid.

The sub-pleural hemorrhages suggest the possibility of an extension of the disease of the cord into the medulla oblongata.

There is, however, little reason to doubt that the majority of the lesions found within the cord were those attributable to the first attack.

It is possible that the injections of food, acting upon

membranes of reduced vitality, had something to do with the ulcerations in the large intestine.

The symptoms cannot have entirely originated in this way, however, since the persistent vomiting and the first bloody dejections and the high temperature antedated the use of the enemata.

The greater amount of disease in the right anterior cornu of the cervical region perfectly explains the greater degree of atrophy in the right arm; but it is doubtful whether it would have been possible to discover the lesions corresponding to the affection of particular muscles, even had the clinical history been more complete, since all the groups of cells on the right side were so severely involved.

The groups of cells most affected, however, were those of the "median area," and both the anterior groups; while those best preserved were the extreme lateral and posterior groups.

The movements most seriously impaired were abduction at the shoulder, flexion at the elbow, and the finer movements of the fingers.

CONTRIBUTIONS TO PSYCHIATRY.

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XII.—AN HISTORICAL CASE OF GOUTY INSANITY.¹

WHILE, as Dr. Ray remarks,¹ the insanity of a prince is of no more importance than that of a peasant, still the insanity of the latter concerns his immediate relatives only, while the insanity of the former may affect the welfare of great nations, and this is especially the case with the subject of this paper.

The relations of gout to insanity have formed the subject of special study in England and France, and with good reason, for nowhere, perhaps, is the disease more frequent than there. Before proceeding to discuss the case which is the subject of this paper, I propose to review briefly the mental phenomena produced by gout. Sydenham² says: "The body is not the only sufferer, and the dependent condition of the patient is not his worst misfortune. The mind suffers with the body, and which suffers most it is hard to say. So much do the mind and reason lose energy as energy is lost by the body, so susceptible and vacillating is the temper, such a trouble is the patient to others as well as himself, that a fit of gout is a fit of bad temper. To fear,

¹ "Mental Pathology." *Insanity of George III.*

² *Works of Sydenham*, vol. ii, pp. 128-148.

anxiety, and other passions the gouty patient is a continual victim ; whilst as the disease departs the mind regains tranquillity."

Savage¹ reports a case in which delusions of persecution and suicidal attempts alternated with attacks of gout. The patient was sane when suffering from arthritic gout.

Berthier² comes to the following conclusions on this subject : First : If gout have a marked action on the mind and a special predilection for the nerves, it may, under the influence of predisposition, originate every kind of neurosis, and especially the optic neuroses. Second : The psychoneuroses dependent on the gouty diathesis are most frequently metastatic and alternating, but sometimes it predisposes to a latent or larval vesania. Third : Gouty insanity is often associated with anomalous gout. Fourth : Sometimes the gouty symptoms become lost in the insanity, which then becomes incurable. Fifth : Gouty insanity has an established place alongside of dartrous, syphilitic, and rheumatic insanity.

The single instance of this form of insanity coming under my observation was the descendant of fox-hunting Irish squireens. He was markedly good-humored, as a rule. He had at irregular intervals attacks of gout. The occasion on which I saw him he was wildly excited, and was dashing around the room, smashing articles of furniture, and seeking to escape from enemies. He had been in his usual health up to within three weeks previous to my visit, when he was attacked by gout. While suffering from this, and with his foot encased in a shoe, open as far as the toes were concerned, he incautiously went out in a rain-storm. On his return home the swelling of the joint had disappeared, but he was irritable, peevish, and loudly complained of the noisy streets and his unquiet children, one of whom he beat severely, contrary to his usual custom. From the description given by his wife, he soon developed casual hallucinations, and then passed into the condition in which I saw him. Under the application of warm fomentations

¹ Cited by Bucknill and Tuke, *op. cit.*

² *Annales Medico-Psychologiques*, 1869.

to the lower extremities, and the internal use of colchicum, conium, and potassium iodide, the excitement disappeared and the patient regained his usual good-humor.

Without conceding the propriety of classifying insanity for clinical purposes by etiology alone, I have adopted the term in the present instance to indicate the origin of an attack of insanity in one of England's greatest statesmen. Great as is the name of William Pitt the elder, well known as is his life, I am unacquainted with any medical article dealing with the insanity which attacked him soon after the repeal of the Stamp Act.

The features of his insanity have been described by Macaulay¹ in his usual pellucid style. Pitt's insanity led him to fall into the snares of that cunning primary monomaniac, George III. Pitt at this time was as eloquent as ever, and no one suspected him of mental affection, but his habits gradually became more and more eccentric. A horror of all loud sounds grew upon him. Though the most affectionate of fathers he could not bear to hear the voice of his children, and laid out great sums buying up houses adjacent to his own at Hayes, merely that he might have no neighbors to disturb him with their noise. He then sold Hayes and took a villa at Hampstead, where he began to purchase houses right and left. In expense he vied with the wealthiest Indian nabobs. At Burton Pynsent he ordered a large extent of ground to be planted with cedars, which had to be collected all over England, and were, in accordance with his orders, planted by torchlight. No man could be more abstemious than Pitt, yet at this time the profusion of his kitchen was a wonder to epicures. Dinners were always dressing, as he had a capricious and fanciful appetite, and when he felt inclined to eat, every thing must be on the table. As Macaulay remarks, in the true spirit of

¹ "Essays," The Earl of Chatham.

the alienist, setting an example which could be followed with advantage by his brother members of the legal profession, other circumstances could be detailed, which, separately and singly, were of little moment, but combined and contrasted with surrounding circumstances and with Pitt's previous and after character, justified a diagnosis of insanity. While in this fit of planting, Pitt was summoned to form an administration, and his notes to his colleagues *in posse* were such as even the despot, Louis XIV, would have deemed unfit for use in correspondence with a French nobleman.

The ministry then formed by Pitt displayed any thing but sagacity. In it bitter personal and party enemies were so mingled that they could not but conflict with each other. Pitt, with equal abandonment of his usual sagacity, and in somewhat of a contrast with the course of the old English families from which he sprang, accepted an earldom, ruining for the time being his popularity in England and influence on the continent. Up to the time of the appearance of the psychical phenomena already described, Pitt had been tormented by hereditary gout. This disease was suppressed by remedies, whereupon the mental symptoms already detailed suddenly appeared.

He became melancholy, irritable, and fanciful. The state of public affairs was embarrassing, his colleagues were constantly disputing, his opponents were clamoring against him, and he, the clear-headed statesman, the man of whom Frederick the Great said "England has been long in labor, but she has brought forth a man," said he could be saved from all these misfortunes only by repurchasing the house he had so hastily and capriciously sold. This fancy accomplished, he was somewhat easier, but when business was mentioned, Pitt, the energetic ally of Frederick the Great, the dictator of Europe, trembled, and burst into tears. He passed a year and nine months in gloomy seclusion, while

his colleagues carried out the measures proposed by their cunning, monomaniacal king, under, as it were, Pitt's sanction, yet in total contravention to his policy and wishes. During this time the American colonies were taxed in defiance of Pitt's stirring declaration against such practices, but even this could not call him from his morbid seclusion. He at length resigned his office. Nine months thereafter the gout reappeared, and with it Pitt's intellect. He was once more buoyant, hopeful, and self-confident, but his attack of insanity had enabled, as Macaulay says, the government formed by him to violate every principle of foreign, domestic, and colonial policy dear to his heart. It is by no means improbable that, but for this attack of insanity, the colonial relations of the United States to Great Britain might never have been severed. The case is interesting from this historical stand-point, but is also of interest from its corroboration of the views of Berthier.

XIII.—MORAL TREATMENT OF THE INSANE.

The chief aspect from which the non-restraint system is usually regarded is that of shallow, canting philanthropy. With the exception of Drs. Wilbur and Allen the American advocates of non-restraint rest their preference for this system on its humanitarian claims. This was not the position of Conolly; ¹ he, like Bucknill, ² admitted that while restraint was a barbarous measure, like the actual cautery, still there were cases in which it was useful. For the physical restraint Conolly proposed to substitute the moral restraint afforded by the healthy conceptions of the mind of the attendant, which would act in sharp contrast to the insane ideas of the patient. This was certainly, in an extended sense, intimidation.

The insane conception, as a rule, is affected by the influence of healthy conceptions, and so strong is this influence

that at times these masterpieces of perverted logic, the systematized delusions of primary monomania, are dominated by them, and the patient recognizes his own insanity. At times the phenomenon is presented of the healthy and morbid conceptions contending, so that the French, Cotard³ and others, have denominated the condition "folie avec conscience." Barlow⁴ even believed that the perverted will of the insane man was capable of controlling his insane conceptions by cultivation of sane conceptions.

An element of error in the opinions of these authors arises from the non-recognition of the existence of morbid impulses in sane persons; but even eliminating these there still remain a number of cases in which healthy conceptions in insane minds have dominated the morbid. It may therefore be assumed that the introduction of healthy conceptions into an insane mind tends to recovery or to temporary benefit. Shakespeare illustrates this in Hamlet, when he makes him have a healthy conception awakened, in the midst of an insane tirade, by the presence of Ophelia. It may be asked, Is it possible to introduce healthy conceptions into the insane mind, of sufficient strength to dominate the unhealthy conceptions? To this an affirmative answer only can be given. These conceptions are capable of introduction in two ways. In one, the insane conception is affected indirectly by intimidation; in the other, this effect is more direct. Leuret⁵ proposed direct intimidation as a means of treatment. The patients were to be argued with, and failing to yield to argument, were douched, and rewarded or punished, as the insane conception was in abeyance or dominant. While, as Blanche⁶ has shown, this procedure resulted in forced concealment of delusions by the patient, still there were cases where it had an undeniably curative effect. Leuret supplemented this by a system of school training, which directly introduced healthy conceptions.

That this system, when practised, so to speak, accidentally, has had decided beneficial results, is shown by two cases reported by Singowitz,⁷ and one observed by myself. A young man in the lunatic wards of the Charité, at Berlin, who had been there for eight years, had an enormously exaggerated opinion of himself. He was extremely haughty and dignified, and was a good case of primary monomania. Another man, subsequent to the excessive indulgence in alcoholic and sexual pleasures, was attacked by hypomania. To every question asked him, he replied that he was a colonel and adjutant-general, a capital player at billiards, an extraordinarily expert horseman. He had lately got on horse-back at the circus, and astonished everybody by the unique skill with which he managed the most restive horses. He was very rich; invited every one to his house, and in his attendant saw only a pleasant companion and a witness of his circus exploits. Singowitz proposed to introduce the latter individual to the former. The introduction took place. The two were at first interested in each other. The second patient claimed to be a colonel in the Russian army, whereupon the first proposed to make use of his military talents. The second patient then made more extravagant claims, but he was called a lunatic, and told he ought to be in an asylum. From this time the second patient improved, and rapidly recovered; the first symptoms of recovery dating from the time when he was so rudely and sharply contradicted.

In the case which came under my observation, a patient attacked by hypomania had, among other unsystematized delusions, one that he was the "Supreme Being." In the same ward was a primary monomaniac, who claimed to be the "Holy Ghost." Coming up to the latter individual the first made his favorite assertion that he was "God," whereupon the "Holy Ghost" knocked him down, and insisted on

his retraction of this blasphemy. The "Supreme Being," much astonished, did not make any reply, and was much battered when rescued by another patient, who suggested to the "Holy Ghost" that the "Supreme Being" was a lunatic. The latter from this time never mentioned his delusion, which finally disappeared. He became industrious, and was soon discharged recovered.

Guislain⁸ has reported a case in which the intimidation was not so purely physical, and in which recovery occurred.

Krafft-Ebing,⁹ from similar clinical experiences, is of opinion that certain cases are benefited by treatment on Leuret's principle. It is obvious that the action of intimidation depends upon its suddenly changing the current of the patient's ideas, and from it being at times *per se* sufficient to introduce new ideas. In certain cases of depressing delusions the effect would be to increase the depression; and in certain cases of primary monomania, such treatment would add to the supports for the patient's insane ideas. I have had certainly in some cases beneficial effects from the use of the camisole. The idea of imprisonment in it was sufficient to deter the patient from insane acts, and day by day this slight motive had a stronger influence, and the insane tendencies disappeared. The use of intimidation would, in these days of philanthropic cant, be attended by difficulty. I therefore pass to other means of directly introducing healthy conceptions into the minds of the insane.

Blandford¹⁰ says for this he has found nothing equal in intellectual patients to the study of languages, since it is intellectual without being emotional, and does not require much assistance. This is an application of one of Leuret's principles. He reports a case where a patient compelled to learn a certain number of verses by rote was cured of a tendency to repeat words and phrases.

Bucknill had schools in the Devon Asylum, in which

patients were taught. These were attended by good results. Similarly beneficial effects are reported by Dr. Lawlor¹¹ from the Richmond Hill, Ireland, Lunatic Asylum schools. At one time such schools were in use in the Utica Asylum, when that institution was under the scientific management of Dr. Brigham.¹² On the advent of Dr. J. P. Gray,¹³ with his terrifically coarse materialistic views of insanity, these schools were abandoned, although they had previously worked well.

The removal of the patient to an asylum acts in this manner often. At home the patient is the centre of an anxious family, who aggravate his condition by the means they adopt to soothe him. His concentration in self is not disturbed, and his delusions grow and sway him. In an asylum he is a single individual part of a community, in which he soon learns that if its rules be not obeyed he is deprived of certain privileges. This induces self-control, and tends to impress the patient with a much-needed fact, that he with his greatness or his woes is not the centre of the universe. In many cases, however, asylum treatment is for these very reasons contra-indicated. It has occasionally been observed that compassion for other people is a means of initiating recovery. In a case reported by Dr. Barstow,¹⁴ a feeling of compassion for a little child led to a patient's recovery. In a case observed by myself a patient recovered by the feeling of indignation excited by an attack made by a strong man on a little boy. Previous to this attack the patient was wrapped in his own lugubrious ideas, and up to the very minute of the attack in question, was complaining of his bitter fate. After the attack he spoke of nothing but it; he was much excited, and when calmed, was found to be much more cheerful than he had been in weeks. The non-restraint system is a potent means of introducing new ideas. The attendant, by con-

stantly ignoring the insane tendencies of the patients, and directing their attention away from themselves, is acting in a manner, as a rule, not attainable under the rabid system of restraint in some American asylums. The other great element of value in the non-restraint system is the individual treatment it entails. The attendant, restricted in the use of restraint, learns how to manage his patients. At the same time the encouragement of insane patients in destructiveness as a means of avoiding restraint, is a psychologically dangerous absurdity. Mental therapeutics in psychiatry seems to be passing under a cloud. The coarse materialist of the present day fails to see that if mind be a force affected by matter, the converse must also be true. The mind plays an important part in the action of ordinary remedies, and that it alone should be a potent agent is not surprising, yet the average American alienist acts as if drugs alone were of value, and when they failed nothing else should be tried.

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THE CORPUS STRIATUM.*

By AMBROSE L. RANNEY, M.D.

THE two nodal masses of gray matter, situated within the substance of each cerebral hemisphere, have been referred to in a previous lecture as the "basal ganglia." They appear, from their situation and relation to the radiating fibres of the cerebrum, to be the naturally appointed guardians which preside over all impulses transmitted to or from the cerebral cortex. Physiological experiment seems to point clearly to an automatism in the cells of these masses (exhibited chiefly in the maintenance of equilibrium after the hemispheres have been removed), as well as to some discriminating power also over impulses which are forced to pass through them, when the hemispheres are called into action. From an anatomical stand-point, they seem to be the poles around which the nervous elements of the cerebrum gravitate; and to constitute a crown, as it were, to the fibres of the crusta and tegmentum cruris. The corpus striatum is the anterior of these two bodies; and the fibres which are associated with it (basis cruris) can be traced into the antero-lateral columns of the spinal cord, with the exception of a few that are supposed to pass to the cerebellum. It may be considered, therefore, as the probable seat of modification and reinforcement of motor impulses emanating from the cerebral cortex. In the fresh brain, this body appears as a reddish-gray mass, situated in front of the

* A lecture delivered before the students of the Med. Dept. of the University of the City of New York.

optic thalamus in each hemisphere of the cerebrum ; with its large extremity directed forward, and gradually tapering as it is prolonged toward the posterior lobes of the brain. It is abundantly supplied with capillary vessels, which circulate within its substance ; and the extreme softness and friability of the mass are largely due to this fact. We know, clinically, that the larger proportion of extravasations of blood within the cerebral hemispheres affect the corpus striatum ; and we may attribute the greater frequency of unilateral paralysis of motion, as compared with those of sensation, possibly to this abundance of vessels and the non-resistant character of the surrounding brain-substance.

The caudate and lenticular nuclei become fused, however, both anteriorly and posteriorly. In front, the caput dips downward toward the region of the base of the brain, and becomes fused with the third division of the lenticular nucleus (the "olfactory district" of Gratiolet) ; behind, the cauda becomes joined to the temporal process of the third member of the lenticular nucleus (*pedunculus nuclei lenticularis*), near to the amygdala.

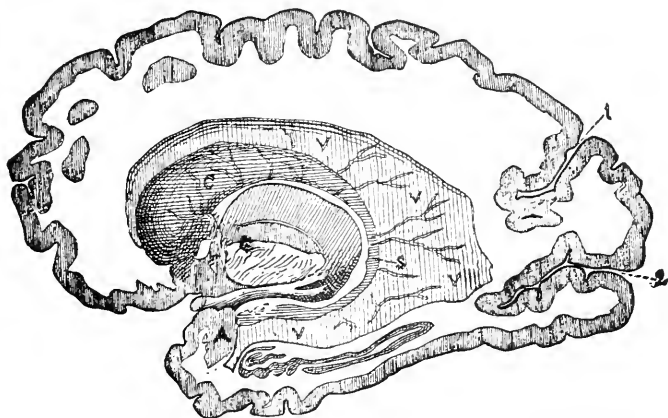


FIG. 1.—Antero-posterior vertical section of the right hemisphere, showing cavity of the lateral ventricle (after Dalton).

C, corpus striatum ; S, surcingle of same ; V, ventricle ; A, amygdala ; 1, internal parieto-occipital fissure ; 2, calcarine fissure.

The entire mass of the corpus striatum, when viewed after the removal of the hemispheres by a horizontal cut made above the level of the basal ganglia, presents an ovoid pyriform appearance; the larger extremity being directed toward the frontal lobe, and the tapering end investing the optic thalamus (which lies behind it) as a layer of reddish-gray matter of steadily diminishing thickness. This "tail-like" prolongation (cauda) has been lately described by Dalton,¹ who has investigated its peculiarities, as forming a complete "surcingle" to the thalamus; so that vertico-transverse sections of the hemisphere of the cerebrum, made to include the thalamus, reveal two cuts of the caudate portion, an upper or ventricular portion, and a lower portion which is perceived in the region of the gyrus hippocampus (amygdala). Such a section shows, moreover, that the so-called "internal capsule" of the cerebrum divides the corpus striatum into two distinct parts; one of which has this tail-like prolongation and projects into the lateral ventricle (the caudate nucleus, or ventricular portion), while the other is shaped somewhat like a section of a lens, and lies buried within the substance of the hemisphere (the lenticular nucleus, or extra-ventricular portion).²

Structurally considered, the corpus striatum seems to be composed of nerve-cells of two varieties: one being of large size with many processes, and the other of small size and multipolar.³ The small cells predominate over the large in point of numbers. It seems probable that the fibres of the spinal cord arise from one set of cells, and those destined to go to the cerebellum from the other (Luys); but this statement is, as yet, somewhat conjectural, although Meynert believes that it is supported by anatomical research.

¹ Gratiolet, Hirschfeld, and Todd confirm this view.

² The reader is referred to the diagrams incorporated.

³ These cells vary from 30 μ to 15 μ in length. $\mu = \frac{1}{1000}$ millimetre.

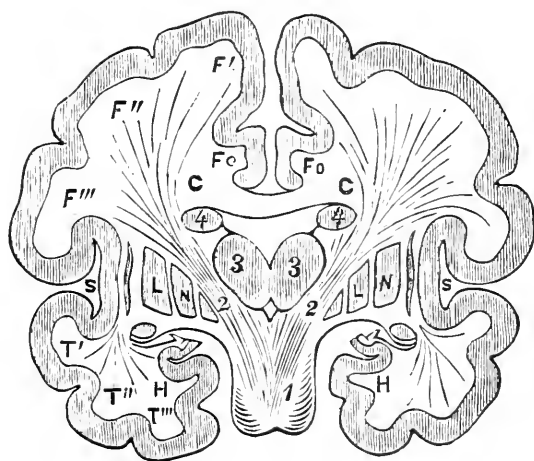


Fig. 2.—A diagram of the brain in transverse vertical section (after Dalton). 1, crus cerebri; 2, internal capsule; 3, optic thalamus, 4, caudate nucleus; C, C, corpus callosum; L, N, lenticular nucleus; S, fissure of Sylvius; Fo, gyrus fornicatus; F', F'', F''', first, second, and third frontal convolutions; T', T'', T''', temporal convolutions; H, gyrus hippocampi.

The nucleus lenticularis is shaped somewhat like a wedge, its base being directed toward the frontal lobe and the island of Reil, while its point passes into the crusta (basis cruris of Meynert), and terminates posteriorly in a jagged, thin edge. If a section through its substance be examined, the microscope will show the existence of two sets of nerve-fibres, viz.: one, whose direction corresponds to the general course of its longest axis, or from base to apex; and a second, which runs parallel with its curved base.¹ The second set divides the ganglion into three distinct members (Glieder), the external being the thicker and larger, while the two inner are the richer in medullary fibres, which gives them the name of "globus pallidus." (See diagram, fig. 3).

¹ The fibres of the lenticular nucleus which run parallel with the curved base of the wedge, separate the three divisions of the ganglion. The extra-ventricular half of the corpus striatum must be regarded as connected especially with the fibres which arise from the island of Reil and other parts in the vicinity of the walls of the Sylvian fissure. Its form suggests that the frontal and parietal lobes furnish by far the greater number of its fibres, as contrasted with the temporal and occipital. It is worthy of remark, that the fibres which pass through this ganglion do not take a direct course, but describe complicated spiral lines.

Within the substance of the corpus striatum (at its inferior and internal portion), there exists a mass of yellowish colored matter to which the name "*yellow nucleus*" has been applied by Luys. In it, the smaller cells of this ganglion are very abundant, and the processes given off from them are of extreme tenuity. There are some grounds for the theory that these smaller cells represent the cerebellar elements of the ganglion, while the large cells are connected with the motor nerves of the projection tract.

Meynert has recognized this collection of nerve-cells, which presents, to his mind, most striking peculiarities. He locates it in the inferior region of the caudate nucleus, extending from a point just above the lamina perforata, anterior to the neighborhood of the anterior commissure. The peculiar anatomical features of this mass are stated by this author to consist (1) of an agglomeration of small nerve-cells into piles, which are distinctly circumscribed; and (2) of very small granules ($6\ \mu$ in diameter) packed into close masses, and distinctly isolated. This latter element is not found elsewhere in the collective cerebral ganglia, and is believed by Meynert to indicate a structural relationship between the caudate nucleus and the olfactory lobe.

We find other cells in the corpus striatum, in addition to the two varieties of nerve elements already described, those of the neuroglia; but they are of little if any importance from a physiological or clinical point of view.

The nerve-fibres associated with the corpus striatum may be divided into two groups, afferent and efferent. The afferent set comprise (1) those which spring from the cortex and enter the substance of the ganglion; and (2) some fibres connected with the superior peduncles of the cerebellum, which are capable of being traced to it.¹ The efferent set

¹ The afferent fibres of the caudate nucleus may be traced as five distinct groups, as follows:

comprise those fasciculi which help to form the cerebral peduncle (*crus cerebri*) and which are dispersed, after having passed through the pons Varolii, chiefly in the different segments of the spinal cord.¹

Let us now consider certain points in the arrangement and probable function of these groups of fibres.

The afferent fibres which spring from the cortex and unite with the nerve-cells of the corpus striatum may be designated as the "cortico-striate" group. They appear to spring chiefly from the *psychic* (?) and *motor regions* of the cortex; hence we are apparently warranted in attributing to the corpus striatum some special association with these two functions. This view is, moreover, sustained by the fact that the efferent fibres of this ganglion are lodged principally in the motor paths of the projection system.²

The experiments of Fritsch and Hitzig have demonstrated that weak galvanic currents (when applied to certain regions of the cortex apparently connected with the corpus striatum by radiating fibres) produce muscular movements in special regions of the body; and they were thus enabled to create, at will, motions of the eye, tongue, mouth, neck, and limbs. Bartholow has demonstrated the same physiological result in the brain of a man, in whom the top of the skull had

1. Fibres which spring from the entire length of the arch of the cerebral hemisphere (*corona radiata*).

2. A bundle of fibres springing from the cortex of the temporal lobe to the most anterior part of the caudate nucleus, following a curved course along the inner border of that ganglion (*stria cornea*).

3. Fibres which arise from the cortex of the olfactory lobe and pass to the corpus striatum.

4. Fibres which unite the cortical substance of the septum lucidum with the inferior region of the corpus striatum (*pedunculus septi lucidi*).

5. Fibres of the cerebellum, which reach the cerebrum as described above.

The *upper* border of the caudate nucleus of the corpus striatum, which is, at the same time its *outer*, seems to be the pole toward which the afferent fibres of the ganglion centre, with the exception of the *stria cornea*. The *lower* or *inner* border acts as the peripheric pole, from which its efferent fibres emerge.

¹ Some of the efferent fibres of the corpus striatum probably go to the cerebellum.

² A term first brought into general use among neurologists by Meynert.

become destroyed by disease. Both Bourdon and Luys have discovered an atrophy of cortical motor centres (as the result of loss of its function) in subjects deprived of a limb by amputation. In spite of these facts, however, we are still unable to state positively that all the fibres which radiate from the motor centres of the cortex are directly united with the nerve-cells found in the corpus striatum; since one bundle (the so-called "internal capsule"),¹ seems to pass directly through the ganglion without meeting any interrupting cell elements in its passage. Whether this is actually the case, or only an apparent one, it is impossible to determine from our present knowledge.

Among the afferent fibres of the corpus striatum, I have mentioned certain terminal expansions of the superior peduncles of the cerebellum. It seems to be now accepted, by most observers, that the fibres of these peduncles first decussate in the median line, and afterward become associated in the formation of two masses of a reddish color (red nuclei of Stilling), from which may be traced numerous filaments of a yellowish color, that, after extensive interlacement with each other, are prolonged to the yellow nucleus of the corpus striatum. An attractive theory has been advanced by Luys, that these delicate fibrils are the wires which carry the continuous currents of electric force, which overflow from the cerebellum to the corpus striatum, and thus constantly charge the cells of that body, which are liable to become exhausted by the controlling influence exerted by them over motor impulses transmitted from the cortex of

¹ The so-called "internal capsule" separates the two parts of the corpus striatum, in front, and the lenticular nucleus from the optic thalamus, posteriorly. It extends into the crus as a part of the second projection system, the "basis cruris cerebri." Within the crus, those fibres which are connected with the tail of the intra-ventricular portion of the corpus striatum are described by Meynert as pursuing a somewhat peculiar course. They seem to appear to emerge from among the external bundles, and to disappear again among the internal fasciculi of the crus. To reach this portion of the crus, they are forced to cross the intermediate bundles.

the cerebrum. Physiological experiment points strongly to cerebellar innervation of motor acts, since disturbances in co-ordination of movement are produced by disease of the cerebellum, and motor acts appear to be weakened: phenomena of the greatest importance, as tending to confirm the view taken regarding the foci of motor innervation.

The corpus striatum, like the optic thalamus, may be considered, therefore, as a territory in which cerebral, cerebellar, and spinal activities are brought into intimate communication. It acts as a halting place for voluntary motor impulses emitted from the cerebral cortex. It enables these impulses to become modified and possibly reinforced by currents derived from the cerebellum; and, by its efferent fibres, it transmits centrifugal motor impulses along the projection system to different groups of cells within the spinal gray matter, whose individual functions they tend to evoke.

To sum up, this ganglion probably acts as a condenser and modifier of all motor acts which are the result of volition; and manifests, through the agency of its satellites (the cells of the anterior horns of the gray matter of the spinal cord), the outward expressions of our personality. Without the influence of the cerebral hemispheres, it is also capable, by means of cerebellar innervation, of governing all the complex muscular movements required in maintaining equilibrium (coördinated movements). Finally, it may be presumed to possess the power of analysis of cerebral and cerebellar currents received simultaneously, and of materializing them by the intervention of its nerve-cells, projecting them in a new form, amplified and incorporated with the requirements of the general organism.

Experiments made upon the caudate and lenticular nuclei can hardly be said to have afforded results which can be made the basis for positive deductions respecting the

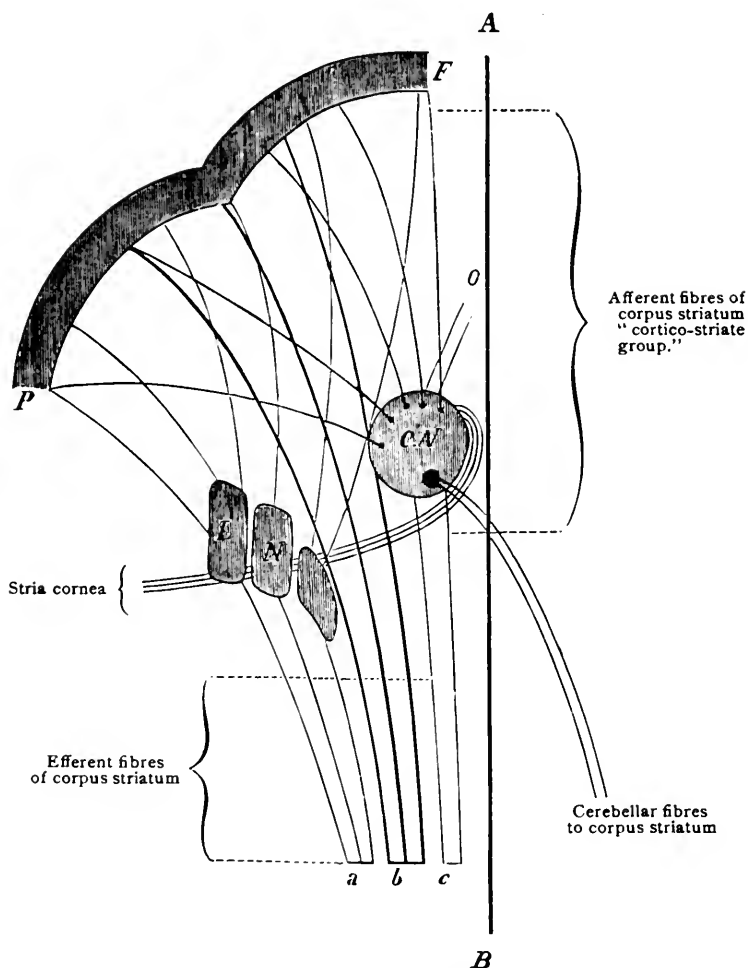


Fig. 3.—A diagram designed to show the afferent and efferent fibres of the corpus striatum. *C, N*, "caudate nucleus," or ventricular portion of corpus striatum; *L, N*, "lenticular nucleus," or extra-ventricular portion of corpus striatum; *A—B*, median line, separating cerebral hemispheres; *P—F*, psychomotor regions of the cortex; *a*, peduncular fibres connected with *L, N*; *b*, fibres of the so-called "internal capsule"; *c*, fibres connected with *C, N*; *o*, olfactory fibres.

functions of each. Nothnagel employed injections of chromic acid into the substance of each, and also destroyed them by means of an instrument devised for that purpose, but he made no positive conclusions save that the lenticular

nucleus seemed to have a more decided influence upon motion than the caudate nucleus, when both sides were simultaneously destroyed.

Some observers claim to have removed the entire ganglion without any marked disturbance of sensory or motor phenomena.

In no instance, to my knowledge, has the destruction of these nuclei produced psychic effects. When akinesia (loss of movement) has been thus artificially produced, it seems to be absolutely confined to the opposite side of the body. In cases of extreme rarity, lesions have been shown clinically to have resulted in a paralysis of motion of the same side; but Flechsig has helped us to properly interpret these cases, as they afford evidence of an individual peculiarity in the relative number of decussating and direct pyramidal fibres. Ferrier has produced convulsive movements of the opposite side of the body by faradism of the corpus striatum, and Carville and Duret's observations seem to be in full accord, thus sustaining the theoretical view first advanced by Carpenter and Todd, as to an exclusively motor function in this ganglion. Burdon-Sanderson also has produced *localized* movements by electric stimulation of the white matter of the brain in the region of the corpus striatum.

It would be rash to draw any conclusions of a positive nature in the face of such a conflicting mass of experimental and clinical evidence; but it cannot be disputed that those who support the doctrine that the fibres of the internal capsule are the direct paths for motor and sensory impulses (the anterior two thirds being motor, and the posterior third sensory, in function), and that all effects of experiment upon or disease of the corpus striatum are the result of *pressure upon this tract*, have, in the light of our present knowledge, the most plausible theory. In what way this path of conduction is brought in direct or indirect dependence upon

the cell elements of the nodal masses, with which it bears so intimate a relation, it is impossible to state positively; but it cannot be denied that it seems to have the power of isolated conduction, in spite of any connections with ganglion cells, which may yet be proven to exist.

A CLINICAL NOTE ON THE PROPAGATION OF INSANITY.

By H. M. BANNISTER, M.D.,
KANKAKEE, ILL.

A PROMINENT member of a State Legislature and a very shrewd and observant man, when speaking of the appropriations called for the care of the insane in his State, which had risen to a higher figure than ever before, made the remark that he would not grudge all that was asked, if he could only see the insane stop reproducing themselves. His common-sense recognized that heredity was one of the most important factors in the increase of insanity, which is becoming one of the most serious problems of the present time. If it were practicable to prevent the marriage of those with known hereditary neurotic or insane tendencies, it would unquestionably be a very much less serious one.

The records of a hospital, new and as yet comparatively small, do not afford the fullest data on the question of the heredity of insanity, and yet I have found in them some facts that are suggestive, if not conclusive enough for large generalizations. Out of 518 individuals admitted as patients to the Illinois Eastern Hospital for the Insane up to last October, some statements in regard to their family history were obtained in just one half, or 259 cases. In 154 of these there was a vicious heredity either of insanity or other nervous disease, or of intemperance of parents. In

104, or two fifths of the whole, there was a family history of insanity. In very few cases was the history complete; and there is some reason to believe that in several of those in which the heredity was reported good, there might yet have been a neurotic or insane taint. In one or two instances this was assured, and they were added to the other category. There are very obvious temptations to suppress facts of hereditary mental disease, and it is easy to suppose that in some instances the records may be incomplete and even misleading as to this important point.

The main point, however, to which it was intended to call attention in this article, is the relative frequency of the intermarriage of the insane and those with hereditary insane tendencies. There are in Illinois, according to the most recent estimates, in round numbers, about 6,000 insane, or one to a little over 500 of the population. Even if we double, treble, or quadruple this frequency, so as to include all that have been or are to be insane, as well as those insane at the present time, it would not appear that there was much probability of two insane persons being married according to any ordinary law of chances, but in fact we find four out of the 104 with insane heredity had both father and mother insane. In one of these cases the insane heredity involved parents and both grandparents on each side, though in the case of the latter the histories show it only as collateral. Besides these, three patients had direct paternal and collateral maternal heredity; two had direct maternal and collateral paternal heredity, and in one case there was collateral heredity of insanity on both sides. This makes altogether nearly ten per cent. of those with insane heredity, with it on both sides, maternal and paternal, and thus favored with a double opportunity to inherit mental disease. If we add to this the instances where, with insanity of one parent, there is reported either epilepsy, hysteria, or drunkenness, "brain disease,"

"nervousness," etc., of the other, the ratio of double inheritance rises to over twenty per cent.

In many, and probably in most, large asylums, there are found at the same time several patients that are related to each other in various degrees of consanguinity. A study of the family histories in such cases sometimes reveals very suggestive and remarkable facts as to the intermarriage of the insane, and instead of following out direct lines of heredity one finds himself involved, to use a professional simile, in a regular plexus of inosculating branches from several family stems. It is difficult to obtain complete and perfectly accurate data in all respects in such cases, but sometimes enough can be obtained to afford a very striking and interesting record. I have in one case obtained the following, which I think is correct as regards the main facts. Of course I substitute fictitious names, employing those of about the same relative frequency as the real ones.

William Bronson, who afterward became insane and committed suicide, and his wife, Susan Hopkins, had, with perhaps other children of whom we have no record, three daughters, two of whom became insane. One of these died without issue; the other married John Woodbridge, and had by him a son and daughter. The former married a Miss Hopkins (whether related to his grandmother or not is unknown), and by her had two daughters, one of whom is now insane, and the other, married to F. E. Crane, whose father was insane, has by him an insane son. The daughter of John Woodbridge did not, so far as known, become herself deranged, but her daughter, Cynthia Hopkins (married to a nephew of her uncle's wife), is now an inmate of an asylum.

The third daughter of William Bronson married Andrew Munson, and their daughter Catharine married (1st) William Crane, and had by him three children; (2d) married James Woodbridge, whose father was insane, and who was himself the father of an insane daughter by a former wife. It was while visiting this daughter at the asylum where she was confined that he first met Mrs. Crane, who was then also going through an attack of insanity, similar to those she had afterward for the remainder of her

life, and they were married during one of her lucid periods. William Crane appears to have been himself a member of an insane family, as his brother, Jonas Crane, is the father of an insane daughter, and it is perhaps worth noting that he has a step-son who has married into still another insane family.

There appear to be four insane families represented in the above, the original Bronson, Hopkins, Woodbridge, and Crane; at least the repetition of names would appear to indicate this, and suggests a number of insane marriages that cannot be positively proven to be such. I may say here that I have seen indications of several other similar plexuses of insane heredity that I have not yet been able to trace out to any satisfactory extent. The one I have given is more suggestive than complete; indeed, it is hardly possible in any case to thoroughly follow out all the ramifications of cross-relationship and intermarriage in such a record.

I have learned from Dr. Dewey of three cases in one hospital where husband and wife were patients together, and of another in which two patients were married after their discharge, as they claimed, with the approval and by the advice of the superintendent. The husband in this case is a periodic maniac, and is ending his days as a State pauper in an asylum; the wife continued sane, and the one surviving offspring of this union has not, so far as known, yet shown any actual insanity.

I will not venture to assign or suggest any causes for the singular tendency here indicated of persons with an hereditary liability to mental disease, to select each other for life-mates, and thus to perpetuate and intensify in their offspring their own unfortunate inheritance. But if such tendency exists, as appears somewhat probable from the facts I have stated, it is a matter for serious consideration, and for further study and observation. I have seen, thus far, very little mention of it in medical literature.

MICROSCOPICAL EXAMINATION OF THE BRAIN AND SPINAL CORD OF AN EPILEPTIC.

By DR. JAMES KINGSBURY.

PRESENTED BY DR. CHARLES K. MILLS TO THE PATHOLOGICAL SOCIETY OF
PHILADELPHIA, DECEMBER 14, 1882.

THE following report constituted a portion of the Inaugural Thesis of Dr. James Kingsbury, of Newtown, Sydney, Australia (University of Pennsylvania, 1881). The patient at the time of her death was in the *Philadelphia Hospital*, in the wards of Dr. Mills, by whom the clinical notes and hardened specimens were furnished to Dr. Kingsbury.

M. W., aged forty-seven, had had "fits" since she was an infant. During childhood she would have seizures at irregular intervals, sometimes weeks and sometimes months intervening between them. When eight years old, in one of the attacks she fell into the fire and burned herself severely. After getting married, about the time she became of age, the seizures became more frequent and severe. During pregnancy they would recur as often as once or twice a week.

Some facts in regard to special features of her attacks were obtained from her daughter. They were usually of the grave type of epilepsy, although occasionally between the violent paroxysms she would have spells of *petit mal*, in one of which she fell and broke her leg. Before a grave seizure she would have headache. Just preceding it, she would become giddy, her sight would leave her, and she would usually cry out, "Oh, my head is bad!" Sometimes she would ask for a glass of water, but before she could get it to her mouth, she would fall backward. Her daughter thought that her face was at first pale, and afterward very red or purple.

Her eyes would turn upward. She would usually bite her tongue ; and had bitten spoons in two during her paroxysms. She frothed at the mouth, and was convulsed all over ; working both hands and feet violently. Occasionally she would pass her urine during the paroxysm.

During the last twelve or fifteen years of her life, the seizures were scarcely ever single, the condition known as *status epilepticus* usually occurring. One fit would follow another for periods of from eight to twenty-four hours. After all the seizures were over she would go into a deep sleep for some hours. On coming out of the sleep she would vomit, and would again have great headache, and would be very weak for a couple of days.

Ten years before her death she was decidedly insane for several weeks, and afterward was "a little queer in the head." During the year preceding her death she suffered greatly with neuralgia, which chiefly affected the right eye. The sight of this eye was very dim, and the ball turned inward. The sight of the other eye was also defective, but less so than that of the left. She was partially deaf in her left ear, and smell and taste were blunted. She had never been paralyzed.

A brother, who died of phthisis, had been an epileptic ; and a daughter was also the victim of epilepsy, having seizures once in two or three months.

She was admitted into the *Women's Nervous Ward* of the Philadelphia Hospital, at the beginning of a series of violent convulsions, which lasted nearly two days. She lived ten days after the last paroxysm, but never rallied from a semi-comatose condition.

A post-mortem examination was made four hours after death. External examination showed no scars or evidences of injury. The head was small. The skull was thicker than usual. The brain, after removal, seemed too large for the skull. Little fluid or blood escaped. The weight of the entire brain was thirty-six ounces. A small clot, probably post-mortem, was found in the superior longitudinal sinus. No pachymeningitis was present. The pia mater was everywhere transparent ; it showed no signs of old or recent inflammation. The Pacchionian granulations were not perceptible. The brain was of very firm consistence.

The pons and medulla oblongata were smaller than usual. Special appearances were observed on the floor of the fourth ventricle. At the upper part of the right ala cinerea a small extravasation was seen in the substance of the ventricular floor, and on the left of the median line, in an exactly corresponding spot, was a deeply congested appearance. Just below the locus cinereus, on each side, was a small blood-point or spot. About the centre of the floor of the ventricle was a similar appearance. Minute hemorrhagic points were scattered here and there over the floor of the ventricle and the beginning of the *curva cerebelli*.

Numerous cross-sections were made through the cord. The postero-lateral columns presented yellowish-brown streaks. A small hemorrhagic focus was found in the anterior horn, about one inch below the junction of the cord with the medulla oblongata.

The left kidney was slightly cirrhotic. A small cicatrix was found in the apex of the left lung.

The brain and spinal cord were prepared for microscopical investigation with great care by the following method: A one-per-cent. solution of chromic acid was made. To this was added an equal amount of 95 per cent. alcohol, and the specimens were placed in this solution. A fresh solution of the same kind was used every day for one week, and every other day for a second week. At the end of this time the specimens were placed in strong alcohol. They were kept constantly in the cold. They hardened perfectly.

Blocks of brain tissue were removed from regions mentioned in the following report, and again put into hardening fluid. The microscopical sections were in those of the convolutions all vertical, and were of sufficient size to show the entire depth of gray cortex and some white matter beyond. Those of the ganglia and tracts were also vertical, and large enough to include ganglia and capsules. They showed, in

other words, in the special sections studied, a part of optic thalamus, tail of caudate nucleus, posterior portion of internal capsule, lenticular nucleus, and external capsule. A longitudinal section of entire pons and medulla oblongata in its posterior half was made with Dr. Seiler's microtome. With this exception all the sections were cut by hand by Dr. Kingsbury. The spinal-cord sections were transverse.

MICROSCOPICAL REPORT.

Anterior end of right frontal lobe.—Every thing normal except an increase in the cells of the neuroglia, in both the gray and the white matter, but particularly the latter, with some obliteration of the perivascular spaces.

Anterior end of left frontal lobe.—Is the same as its fellow, only the obliteration of the perivascular spaces is less marked.

Along fissure of Rolando, right side.—A slight increase in the cells of the neuroglia of both the gray and white matter. The periganglionic spaces not well marked. The perivascular spaces are intact.

Fissure of Rolando, left side.—Just as the right side, but in less degree.

Anterior portion of right cornu Ammonis—gray matter.—Many of the perivascular spaces narrowed, and some have entirely disappeared. This appearance does not seem to be due to an actual filling up of cells, but probably to dilatation of the blood-vessels. In some places the spaces are intact. The obliterated spaces are apparently limited to certain regions mostly peripheral. The periganglionic spaces are barely noticeable, and the ganglionic cells appear to be more granular than normal. The cells of the neuroglia are increased, and appear unusually granular.

White matter.—The obliteration of the perivascular spaces still more marked, only a few of the larger vessels showing them. The cells of the neuroglia are decidedly increased and granular, and appear cloudy, though the specimen has been most perfectly prepared. This turbidity diminishes as we approach the gray matter, where it is entirely lost. Blood-vessels dilated.

Anterior portion of left cornu Ammonis—gray matter.—The perivascular spaces much less obliterated as compared with the right side. The periganglionic spaces are somewhat diminished. The ganglionic cells are more granular than normal. There is

seen a small saccular aneurism of an arteriole in one of the fissures.

White matter.—The same as the opposite side, only in less degree. Blood-vessels somewhat dilated.

Posterior portion of right cornu Ammonis—gray matter.—The perivascular spaces are very decidedly obliterated. The periganglionic spaces are not noticeable. The ganglionic cells have a normal appearance. The cells of the neuroglia are increased. In certain places the specimen did not take the staining well, indicating some retrograde change in its elements.

White matter.—The perivascular spaces are less obliterated, but the blood-vessels are much dilated, and many of them are filled with blood. The cells of the neuroglia are increased in number, at some points more than others.

Posterior portion of left cornu Ammonis—gray matter.—The perivascular spaces are less obliterated, some being quite normal. The periganglionic spaces are normal, also the ganglionic cells. The cells of the neuroglia are increased, and somewhat granular. The *white matter* presents the same appearance as the right side, but to a less degree.

Occipital lobe, right side—gray matter.—Increase of the cells of the neuroglia, slight obliteration of the periganglionic and perivascular spaces.

White matter.—Slight increase of the cells of the neuroglia. Blood-vessels dilated and somewhat congested. The perivascular spaces less noticeable than in the gray matter. A remarkable feature is the occurrence in different portions of small capillary abscesses, or rather spots of softening, about the $\frac{1}{16}$ of an inch in diameter, some more, others less; most of them are located by the side of blood-vessels, which would indicate that they are probably due to capillary hemorrhages.

Occipital lobe, left side.—Affected as the opposite side, except perhaps that the abscesses are not quite so numerous.

Ganglia and tracts, right side.—Same as above, there being numerous abscesses.

Ganglia and tracts, left side.—Same appearances seen, but the white matter is full of small capillary infarcts (each not exceeding $\frac{1}{16}$ of an inch in diameter), which have not yet undergone softening, as they show distinct masses of blood corpuscles, which give it a distinct mottled appearance, as greenish or yellowish spots in the already delicate red of the specimen. In some places they have undergone softening. In a limited portion of the gray matter the ganglionic cells are seen to be swollen and pigmented,

and appear highly granular. The periganglionic spaces are completely obliterated. A few of the blood-vessels in the same region appear to have undergone amyloid degeneration. In other places the ganglionic cells are swollen and granular.

Medulla oblongata.—An increase in the cells of the neuroglia throughout the entire section. The blood-vessels are dilated, and the outer walls are very much infiltrated with cellular elements. The ganglionic cells are swollen and granular, filling up the periganglionic spaces.

Spinal cord, upper cervical region—gray matter.—Normal, except congested. *White matter* also congested everywhere. The cells of the neuroglia are increased in the columns of Goll. On one side of the posterior median fissure, is seen a small hemorrhagic infarct, about the $\frac{1}{2}$ of an inch in diameter; also another upon one of the posterior roots at its exit.

Middle cervical region—gray matter.—Normal, except two small abscesses in the transverse commissure.

White matter.—Increase of the cells of the neuroglia in the columns of Goll.

Lower cervical region.—Slight increase in the cells of the neuroglia in the columns of Goll.

Middle dorsal region.—Same as the last region.

Lower dorsal region.—Same.

Upper lumbar region.—Normal, except slight increase of the cells of the neuroglia in the columns of Goll, and two miliary abscesses in the transverse commissure of the gray matter.

Middle lumbar region.—Normal.

Lower lumbar region.—Normal.

In all the sections the pia mater congested.

In all of the specimens, more or less increase of the neuroglia was present. Dilated blood-vessels, obliterated perivascular spaces, diminished periganglionic spaces, and granular ganglionic cells were the lesions found everywhere in greater or less magnitude. In the frontal and Rolandic regions these conditions were not marked or extensive.

The investigation of the cornua Ammonis is interesting with reference to the researches of Cazauvieille and Bouchut, Bonneville, Charcot, Delasiauve, Meynert, and Hamilton. Sclerosis, or induration of these parts, similar to

that described by the above writers, was certainly found. With reference to these regions, and also all others examined and compared, the pathological changes were more marked on the right than on the left side.

The capillary infarcts, and the minute abscesses or spots of softening (due to capillary hemorrhages) found in the occipital lobes, in the ganglia and tracts, and in the posterior regions of the pons and medulla oblongata, are of great interest.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, November 7, 1882.

A stated meeting of the Society was held at the usual hour and place, Dr. E. C. SPITZKA in the chair. Drs. M. Josiah Roberts and G. W. Jacoby were elected to active membership.

Before proceeding to the paper of the evening, Dr. Spitzka read some notes sustaining his priority to the observation that certain artificial precipitates are formed in nervous tissue in preparations by alcohol, and criticising Dr. Dana's report upon the post-mortem appearances presented by Guiteau's brain.

Dr. Spitzka said: As early as February 5, 1877, at a meeting of this Society, in a paper entitled the "Psychological Pathology of General Paresis," I referred to the production by alcohol of artificial precipitates in brain tissue. I further stated that artefacts thus resulting had been described as lesions of parietic dementia.¹ In a second paper, read in March of the year following, entitled "Reform in Scientific Psychiatry,"² I based criticisms of the work done at an asylum in this State on the allegation that such artefacts constituted its basis; and in a sort of sequel³ of this latter paper, read October 5th of the same year, I challenged the American Association of Asylum Superintendents, offering to produce at will the lesions on which the so-called results of the Utica and Oshkosh laboratories were based, in the brains of men or animals previously ascertained to be healthy. That challenge, most of you will recollect, was not accepted, nor was it noticed. Subsequently, I gave a

¹ JOURNAL OF NERVOUS AND MENTAL DISEASE, April, 1877.

² JOURNAL OF NERVOUS AND MENTAL DISEASE, April, 1878.

³ Merits, Motives, and Prospects of the Movement for Asylum Reform. JOURNAL OF NERVOUS AND MENTAL DISEASE, October, 1879.

more detailed account of the nature of the precipitates in a paper¹ published two years ago.

I have been thus explicit in referring to these old publications, because it has unfortunately become necessary for me to assert my claim to priority in observation, which cannot, I think, be disputed. It is perhaps not so remarkable that Dr. Savage, one of the editors of the *Journal of Mental Science*, should read a paper before the International Medical Congress, in the summer of 1881, in whose abstract I fail to find any notice of the previous discovery and description by an American investigator, as it is surprising that a publication should emanate from a member of this Society dealing with these bodies, and ignoring the fact that they had been previously abundantly noticed.

In my latest paper I stated substantially the following:

"When the brain or cord of any animal is submitted to the action of absolute alcohol a sufficient length of time, a peculiar series of changes occurs, simulating lesions, but which can be produced at will in the healthiest human and animal brains. In the first place, alcohol has been long known to extract *leucin* from nervous tissues, and I have found crystalloid or subcrystalline spheres of *leucin* scattered more or less regularly through the tissues, or accumulated in the perivascular areas of healthy brains submitted to the action of alcohol. By varying the length of exposure, or by immersing the brain, or different portions of the same brain, at different stages of post-mortem change, in alcohol, these artificial 'lesions' may be pleasingly varied. That these bodies are *leucin*, or at least chiefly consist of *leucin*, is demonstrated by their chemical reaction. Among the tests which can be conveniently applied, are their insolubility in ether and chloroform, and difficult solubility in alcohol (requiring 1,040 parts of cold and 800 parts of hot alcohol); the bodies do not stain in carmine, and are refractive;² besides, they are either hyaline or show a radiatory striation.³

¹ What Has Been Done by the Asylum Association, etc. *Chicago Medical Review*, June 20, 1880.

² This feature varies, probably according to certain admixtures.

³ Overstaining sections containing these bodies in carmine, and particularly in hematoxylin, does stain the latter; ordinary staining fails to do so.

"As I have stated, variations in the external conditions may possibly have something to do with variations in the composition and appearance of such bodies.

"Now the observer who has not had his attention called to these precipitates before, and who, finding them in the brain of some subject dying from a degenerative brain affection, or from some disorder like hydrophobia or delirium, symptomatic manifestations presumably associated with intense molecular and bio-chemical transformations, may be excused for jumping at the conclusion that these bodies represent *bona fide* lesions.

"But when, as in the asylum under consideration, the same 'change' is found in such different affections as general paresis, subacute mania, and chronic melancholia (cases 2, 3, and 5 of the text), it becomes evident that as little reflection has been exercised as when *destruction* of nerve tracts is considered to be the basis of hallucinations.

"In the text the writer of the paper names them 'granular bodies,' (p.10); '*grumous* granular matter,' (p. 17); 'encysted morbid products,' (p. 21); 'colloid bodies,' (p. 23); globules 'of a fatty nature,' (p. 27); and the fact that he has found such deposits in such different forms of insanity, has evidently furnished the grounds for the following statement :

" 'A fact which seems of the utmost importance is the similarity of histological changes attending the different forms of insanity, as represented in the micro-photographs, and indeed in all cases which have fallen under observation. If such regularity is displayed in future investigations as I am strongly led to believe will be the case, this fact will practically confirm the principle, that in insanity we have to contend with *only one* DIATHESIS, manifesting itself under different phases in its progress and results.'

"The reflection forces itself on the reader, that if the artificial lesions were manufactured to order, as it were, in every other class of diseases, that it would be an equally just inference to refer all somatic affections to only 'one diathesis.' "

Referring to a paper by Kempster in the Wisconsin State Medical Society Transactions, 1877, pp. 43-58, I wrote :

"On page 51 is an excellent description of the artificial precipitates :

" 'Just how these spots originate is not yet well settled. They have been supposed to originate in the nuclei of the neuroglia or nerve glue, which fastens the nerve fibres together, and which consists of a delicate structure made up of cellular material but compact and strong. I am not prepared to state that they do not originate there, but from certain specimens in my possession and which I will show you, it will at once occur to you that the white substance of the brain must be principally made up of nuclei of neuroglia, and that there is little room for any thing else, as the field of the microscope is completely covered by these small masses. They are from the 1-500 to the 1-4000 of an inch in diameter, are clear, of a grayish-white color, and have no perceptible centre or nucleus ; the margins are distinct, and they maintain their individual relations notwithstanding the fact that they are sometimes found closely pressed together. In these minute growths I have failed to find any evidence of any known tissue, notwithstanding that they have been subjected to a prolonged and critical micro-chemical manipulation.'

"Others, which I have repeatedly produced in the brain of a healthy dog, are described as 'miliary sclerosis,' regarding which he gives the following, more than remarkable, explanation :

" 'Another peculiar feature observed, which I will allude to here, but speak of more fully hereafter, that is, that these large masses are found in tracts of nerve tissue previously affected with true sclerosis; and when they are found in sclerosed tissue the spot is not fibrous. When found in tissue not sclerosed they are fibrous. * * * * It is not unusual to find crystals lying upon the surface of the spot, but these are not at all characteristic and found in the normal brain tissue after treatment with alcohol.'

"One step farther, and a little more of judicious comparison, and the writer would have discovered the true nature of the 'lesion.'

"He has the excuse of a precedent for his error, however.

Some of the 'lesions' described can be produced in the brain cortex after an examination of the tissues in the recent state has shown it to be healthy, and it can be produced by using alcohol on one specimen, while specimens from the same convolution hardened in bichromate of potash, or other reagents than alcohol, fail to show it. What Dr. Kempster describes at the bottom of page 43, is the earlier stage of the same artificial precipitates which, in the middle of the same page and the first paragraph of the next, he describes as lesions of a different kind."

The main significance of these descriptions to-day consists in the fact that the medical officers of both the Utica and Oshkosh asylums swore not only that Guiteau was not insane, but also that he was shamming. They further swore at his trial that the microscope always demonstrated visible brain disease in insanity. Indeed, they had both previously committed themselves to such a view in print, contradicting every real authority; the superintendent of the latter asylum doing so in the following emphatic words: "Even in the most recent cases of insanity, although the change may not at once be detected by the unaided eye, the microscope reveals the change and unerringly points out the seat of disease."

Take in connection with this, the fact, which will be made evident from the specimens to-night, that the same bodies photographed at both asylums as the essential lesions of insanity, the same bodies on which Dr. J. P. Gray bases his theory that they represent the basis of hallucinations and delusions, were found in the brain of Guiteau!

It is scarcely necessary for me to say that if any member of the New York Neurological Society were in the predicament of either of these gentlemen to-day, he would either—if sincere in his belief that these bodies were *bonâ fide* lesions—hasten to admit that he was wrong in pronouncing Guiteau sane; or—if shaken in that belief—confess that his statements as to the constancy of pathological findings in the insane, and the genuineness of the body referred to, were incorrect or premature.

But even members of this Society may become the sub-

jects of a legitimate criticism in connection with the report of the microscopic examination *in re* Guiteau. During the summer Dr. William J. Morton allowed me to examine a series of sections obtained from Guiteau's brain, and it was but a few minutes before we discovered a pyramidal nerve-cell of the cortex presenting in a marked degree the evidences of beginning fatty granular change; slighter evidences of the same disintegration were found in other cells. On the same occasion I called Dr. Morton's attention to the artificial precipitates in the section, which had been noted by the preparers and examiners, without any decided opinion as to their character having been arrived at. If my recollection serves me right, Dr. Morton recognized the identity between these bodies and those described by myself and just adverted to, of which I showed him specimens at the time. What was my surprise on reading a "report" signed by Drs. C. L. Dana and Wm. J. Morton, to find that these bodies were referred to as the result of post-mortem decomposition, not the slightest notice being taken of my earlier and repeated description of these bodies in 1877, 1878, 1880, and at other times before this Society. It is but fair in considering this report to say that Dr. Morton had no knowledge of its existence until I called his attention to it; and that his name was affixed to the report under a misapprehension, and without his authority or knowledge.

As this report stands, it incorporates an erroneous view as to the nature of these bodies, inasmuch as its writer regards it as an open question whether they may not be the result of post-mortem decomposition, whereas they are really due to the imperfect methods of preparation resorted to. The general conclusion is that nothing of note in the way of a morbid appearance, such as is found in insanity, could be discovered in the sections. Through the kindness of Dr. Morton I was enabled to examine representative sections of all the specimens in the hands of the "committee," and owe to him the set of duplicates herewith exhibited. I find, in contradiction to the report, that notwithstanding the tissues are improperly preserved, indifferently

hardened, so badly cut (in consequence), and so poorly stained, that a positive statement that the actual tissues were normal would in itself appear suspicious, that there is not a healthy section among them. I have marked a few spots for reference, and should be very happy to exhibit them to any gentleman interested, or to any committee that the Society would name, in daylight; I regard our available illumination to-night inadequate for finer study. It is remarkable to what extent the discoverable lesions in the specimens constituting the basis of Dr. Dana's report, correspond to the description furnished by the officially authorized committee, whose report was drawn up by Dr. Shakespeare of Philadelphia. The vascular as well as the cellular changes described in the "Shakespeare report" can be discovered—not in isolated examples, but in profusion—everywhere throughout the sections obtained from Dr. Morton.

I am also able to exhibit to the Society this evening, through the courtesy of Dr. Shakespeare, a specimen from the frontal lobe and one from the corpus striatum of Guiteau. These sections were prepared by Dr. J. C. McConnell of the Army Medical Museum: a glance will show that they are beautifully cut; the staining might be a little deeper, or possibly the method of preservation may have prevented the staining of the ganglionic bodies as one might wish to see them stained. The atrophy of the outer cortical layer is evident in the section, though it is difficult to say how much this appearance may be intensified by a cellular infiltration of that zone. The lesions of the blood-vessels are distinct and intense; one of the long arterioles particularly shows the kinking and corrugation, as well as the residue of old and recent hemorrhages in its adventitia, common with the chronic insane, in a most typical manner.

It was not my intention to-night to dilate on the significance of these appearances, or their bearing on the individual case, in which it was my fate—without any provocative act on my part—to become a confessedly most interested party. Nor do I intend that this communication shall elicit a discussion of the general questions of the

trial, of the mental state of Guiteau; or even of the hypothetical bearing of such lesions as those represented in the exhibited specimens, on mental symptomatology. I desire simply to present facts and criticisms which may be tested to-day and to-morrow on the basis of facts; and I have selected a Society, and naturally this one, as a medium of communication, because I could thus best secure a fair hearing and a full re-criticism in the presence of facts.

At the conclusion of Dr. Spitzka's remarks, Dr. MORTON, who occupied the chair *pro tem.*, said that it would be better that he should be the first to speak upon this subject, since evidently a misapprehension in regard to his signing the report in the *Medical Record* had arisen.

It was natural, from several points of view, that Dr. Dana should have supposed that his (Dr. Morton's) views coincided with those expressed in the report, since he had gone to Washington with Dr. Dana, had reported upon the superficial appearances of Guiteau's brain together with him, and had had sections of this brain prepared by Dr. Porter, in Dr. Satterthwaite's laboratory, in which Dr. Dana was working. He had also glanced over the specimens hurriedly, being on the point of departure for the country for the summer; and though pointing out to Dr. Dana certain appearances that he held to be probable artificial precipitates, and other evidences of a morbid condition of certain cells, he had, nevertheless, expressed no decided opinion upon the subject, but left it entirely open. A few hours subsequently, in conferring with Dr. Spitzka, he felt confirmed in these views, but reserved any expression of opinion until he had time to make a thorough examination. Dr. Dana, not fully aware of his position, and supposing it to be similar to his own, had appended his name to the report, a fact of which he was ignorant, owing to the miscarriage of a letter from Dr. Dana.

Dr. DANA remarked that Dr. Morton had correctly stated the situation, and the mistake had probably arisen from the loss in the mail of the proof-sheets that had been sent to Dr. Morton. He regretted that he had not previously seen an account of Dr. Spitzka's prior description of the artificial precipitates referred to, but suggested that their publication

had not been sufficiently widespread to attract attention.

Dr. MORTON further stated that his position in regard to the histological post-mortem changes found in Guiteau's brain was fully expressed by the "Shakespeare report," as was evident from the fact that he had published this report in full in the *JOURNAL OF NERVOUS AND MENTAL DISEASE* with editorial sanction.

Dr. SPITZKA, in concluding the discussion, remarked that the best pathologist would have been unable to make a satisfactory examination of the specimens from which Dr. Dana derived his sections, while a less able pathologist would have been in a position to make a good examination of those prepared by Dr. McConnell. He had been under the impression that the specimens had been prepared by Dr. Satterthwaite's assistants or at his laboratory, because to the best of his recollection, the laboratory and Dr. Satterthwaite's assistants were accorded prominent mention in Dr. Dana's report.

Here Dr. DANA interpolated that that was a mistake, that he had himself prepared the specimens upon which the report was based.

Dr. SPITZKA continued, saying, that with regard to Dr. Dana's omission of priority-acknowledgment, that the very paper referred to by Dr. Dana as the only one found by him was published much less prominently in the same medium with those referred to. His description there quoted of colloid transudation and vascular stasis, referred to a genuine lesion in parietic dementia, and not to artefacts. He thought, while not questioning Dr. Dana's intention of giving due credit, that it was a little hard, in view of the common assertion as to the scarcity of original scientific work in America, that when such work was done, it should remain unknown not only to a gentleman across the water, who, like Dr. Savage, was the editor of a journal that had reviewed the first of his papers, but also to those residing in the same community. He added that he would have been less critical on this and other heads, if the fact had not been so strongly apparent to him, that the report referred to would be looked upon as one—however

forced—confirmation of the position taken by the *N. Y. Medical Record* in its editorial expressions on the Guiteau question.

The paper of the evening, entitled "The seat of instinct," was then read by its author, Dr. WM. A. HAMMOND.

Dr. Hammond held that the seat of instinct was in the medulla oblongata, or in the spinal cord itself.

Numerous instances were brought forward to sustain this proposition. Frogs whose cerebral hemispheres had been removed would execute the swimming movements perfectly. If the medulla were removed, leaving only the cord, they executed no movements of the kind—hence the seat of this instinct, so strong in the frog, was in the medulla.

Maine de Biran had recorded an instance where the head of a snake had been cut off and yet it found its way with great certainty to its customary hole in the wall. Again, anencephalous monsters sucked, cried, and opened and shut their eyes. From a large array of facts of this nature, Dr. Hammond felt justified in concluding that instinct resided in the medulla and cord.

The discussion was opened by Dr. PARSONS who said, that while he could agree with some of the points advanced by Dr. Hammond, he could not unreservedly agree with him in others.

He thought the question regarding the seat of instinct could be best investigated by studying its manifestations in the lower order of animals and plants, and by and by considering instinct in its broad rather than in its restricted sense; that is, by proceeding from the simple to the complex, rather than by commencing with the complex.

He applied the term instinct to all involuntary acts or movements of the whole, or of parts, of living beings which were produced by the direct agency of the being, whether within or without the sphere of consciousness, and whether excited by external forces or not. In its broad acceptation they term instinct reflex and automatic acts of every kind and degree. This meaning was in accordance with the design of the instinctive powers, which was the preservation of the individual and the continuation of the species.

Hence, the innate force by which the protophyte or protozoön gets its food, or resists injurious influences, was as really instinctive as the more complex and apparently intelligent acts of higher beings, such as the constructive instincts of bees and birds, the instincts which lead animals to seek proper food, or avoid their enemies, or the involuntary movements of the body which are caused by the emotions.

But the protophyte or protozoön had an organization so simple that each part performed the same functions as every other part. In some of the lower orders of beings reproduction was accomplished by a process of scission, the being dividing itself into two parts, each of which was as complete as was the original whole. There was no differentiation of organ and function, and no nervous system in these lower orders, each and every part performing such vital acts as are required for preservation or reproduction. In these beings the instinct had its seat in general in every part, and in particular in whatever part the force was exerted. Higher in the scale of organization special organs began to appear, or were differentiated from the homogeneous mass, for the performance of special functions, as the digestion of food. The stomach, for instance, then performed a specific vital act which was innate or instinctive in character. The force had its seat in the organ that performed the act.

Still higher in the scale of organization, nerve-masses connected with the stomach, and to a greater or less degree controlling its functions, were differentiated. Here the seat of the instinctive force was in part in the nerve-mass, and in part in the stomach itself, the force in each being responsive to that in the other.

Yet higher in the order of development certain innate or instinctive impulses came within the sphere of consciousness. The mind cognized that certain instinctive acts were being performed, and to a greater or less extent controlled or regulated their performance, while at the same time the act itself was quite involuntary, or might even be in opposition to the volitions. Many bodily acts of an instinctive

character, such as blushing, increased or diminished action of the heart, and the flow of tears, were often caused by the emotions; or, in other words, by the agency of the higher nerve centres within the brain.

A particularly good illustration of the various phases of instinct, and of the changes that take place in its seat, might be found in the reproductive or sexual instincts. In man, for example, the sexual instinct did not exist during the foetal state and the early years of infancy. At a certain stage of development the reproductive organs began to evolve their force. Hitherto it had not been manifested in the higher nerve centres. But as soon as the ovaries or testes began to develop their reproductive functions, the higher centres, which hitherto had possessed the sexual instinct only in potentiality, began to exercise the function, or to develop the force, in reality. The reproductive instinct had its origin in the reproductive organs, and these organs never lost the force they originated. But as soon as the responsive or coördinate instinct was developed in the higher centres, these higher centres also became originators of the force. The reproductive organs stimulated the emotions; and the emotions themselves, aroused through the senses, stimulated the reproductive organs. The sexual instinct had its seat not alone in the spinal cord, in the brain, or in the reproductive organs, but in each of the three.

Dr. Parsons considered instinct to be not one, but many; so that the answer to the inquiry regarding the seat of instinct might be best found out by ascertaining where in the organism this, that, and the other instinctive force had its seat; and if we found out, as seemed to be the case, that one or other of the instinctive forces had its seat in every tissue of the body that performs a vital action, we must arrive at the conclusion that instinct has its seat in all parts of the body, each particular instinct having its seat in the part or parts which exert the instinctive force.

He thought the question regarding the seat of instinct was analogous to the question regarding the seat of the retentive power, or the memory. There was no especial organ

of the memory, but memory, in a physiological sense, was a quality or condition of an organ or tissue. A certain part of the brain, for instance, cognized the relation between ideas and the expression of ideas. Having cognized certain modes of expression, as words, for example, it retained the impression it had received. It remembered words. Another portion of the brain in like manner cognized and remembered forms. Another portion directed the fingers, for instance, to do certain acts again and again. It retained or remembered these acts. But after many repetitions the eccentric nerve tissues immediately concerned in these movements acquired and retained the ability to produce them of themselves, without the influence of the central originating force ; or, in other words, eccentric nerve-tissues had the faculty of memory.

Dr. LEONARD WEBER thought that the brain could not be excluded from participation in the acts due to instinct. Dr. HAMMOND's location of the seat of the instincts was too narrow—such experiments and observations as had been brought forward were not, in his opinion, sufficient to sustain the author's position.

Dr. GRAY asked the reader of the paper for a definition of instinct.

Dr. HAMMOND thought that instincts had no relation to perceptions.

At this stage in the debate, a motion was carried to suspend the immediate business of the evening in order to allow Dr. MCBRIDE to read resolutions of sympathy relating to the affliction that had fallen upon a most valued member.

The resolutions were as follows: *Whereas*, the greatest calamity that can befall man—the sudden destruction of all that which makes life dear—has overtaken Dr. E. C. Seguin, an active member of this Society, and the first President after its reorganization ;

Resolved, That this Society expresses to Dr. Seguin at this time of his great grief and sorrow, its warmest and heartiest sympathies :

Resolved, That while appreciating how painful it would be to resume work in the community in which such a sad be-

reavement has occurred, nevertheless it is the earnest hope of the Society that Dr. Seguin will resume and soon return to his scientific and professional labors. As a teacher, investigator, and practitioner he has a place which cannot be easily filled.

Resolved, That an engrossed copy of these resolutions be transmitted to Dr. Seguin by the Society.

On motion of Dr. HAMMOND these resolutions were unanimously adopted.

The discussion was now resumed, Dr. GRAY taking the ground that instinct could have no special location, but was to be found rather in varying degrees in every portion of the gray matter of the central nervous system.

Dr. PUTZEL contended that the instinctive acts were those that were due to an inheritance in the individual derived from ancestors in whom similar acts had once been volitional and deliberative.

Dr. SPITZKA asked for further information in regard to the anencephalous child referred to by Dr. Hammond as being able to suck, and open and shut its eyes.

Dr. HAMMOND related the case in full as reported by St. Hilaire. From this report it appeared that all the nervous parts above the foramen magnum were absent.

Dr. SPITZKA could not see how an act of the nature described could take place without the existence of the cranial nerves involved in the act.

Dr. HAMMOND was willing to accept the fact as reported on the authority of an observer as competent as St. Hilaire.

Dr. DANA agreed with Dr. Putzel that instinctive acts were the result of previous ancestral experiences. For instance, the fly-catcher just out of its shell, would capture a passing insect with almost unerring accuracy. This act was undoubtedly an organic capacity derived from a store of previously registered impressions.

Dr. SPITZKA regarded instinct as an inherited tendency residing in species, and confined mainly to acts, whose purpose was to propagate and preserve the individual.

He referred to certain tendencies in the human race which resembled the instincts in the lower animals. A good exam-

ple of this was to be found in the case of the idiot girl who, delivered of a child, proceeded to gnaw through the umbilical cord. As an instance of the modification of instinct, he cited the instance of the Scandinavian mares, which to this day, after foaling, eat the placenta, while the mares in England, from whom, during long ages, the placenta has been at once taken away, exhibit no tendency to devour the after-birth. Dr. Spitzka referred to the "Triebe" of the Germans as being analogous to the instincts.

Dr. PUTZEL coincided with these views.

Dr. HAMMOND regretted that the discussion had drifted from the subject. The question was not as to the nature but as to the seat of instinct.

He maintained that his position was not to be invalidated by simply denying the accuracy of the observations that he had brought forward.

The idea of his paper was to prove that certain acts generally accepted as instinctive, existed if the medulla oblongata remained uninjured. He had therefore located the seat of the instinct in this organ.

The Society then adjourned.

Stated Meeting, December 5, 1882.

Before the reading of the regular paper of the evening, Dr. SPITZKA made a brief verbal statement concerning the case of an infant surviving four months after removal of a large portion of the brain.

Dr. LEONARD WEBER then read a short paper, entitled, "Case illustrating the causal relationship between locomotor ataxia and cardiac disease."

Certain facts had been reported showing a causal relationship between locomotor ataxia and certain cardiac lesions, by Grasset in June, 1880, and by Drs. Berger and Rosenbach, of Breslau in 1879; but in the works of standard authors on neuro-pathology, the reader had not found observations bearing on the subject in question.

His patient, æt. forty-five, had presented during the last

four years nearly all the classical symptoms of posterior sclerosis. In Aug., 1880, attacks of orthopnœa developed in association with violent cough, expectoration of frothy mucus, râles, pericardial *frémissement*, and friction sounds. The systolic sound was muffled at the apex. A diagnosis of pericarditis and endocarditis was made. The attack had come on immediately after the sexual act. A number of attacks of a similar nature occurred from time to time, always after the sexual act. His excessive indulgence probably furnished the immediate cause of the developement of the cardiac disease, while the remote cause was to be sought in the spinal affection, and its weakening influence upon the circulatory system, as explained by Charcot and Eulenberg.

After a brief discussion the Society adjourned.

NEW YORK MEDICO-LEGAL SOCIETY.

At the regular meeting, held October 25, 1882, the President, CLARK BELL, Esq., occupied the Chair.

The paper of the evening was read by the President, and was entitled "Legislation to prevent and punish *suicide*."

It is a question of moment, said the reader, to consider what steps can be taken to prevent death by suicide, or to decrease its volume—one well worthy our serious consideration, whether we view the movement as one to prevent the commission of crime, regarding it, as our laws always have, a criminal offence to take one's life, or to punish the offender for its commission.

Notwithstanding the philosophy and teachings of the Stoics and ancient philosophers, there are few countries or peoples who do not now regard suicide as a crime.

"*Mori licet cui vivere non placet*" was the motto of the Stoics, who claimed that every man had the right to dispose of himself as he pleased.

The general concurrence of the present age, however, may safely be stated to be, that in all civilized countries suicide is regarded as a crime, because it is an offence against the laws regulating and ordering the general welfare of society. It has been well said that "obedience to the law is the highest duty of the citizen." Law is at the foundation of society, without which there is no permanence or safety to the individual. The guaranty of safety to the citizen by society rests upon the law which upholds and supports it. Protection of human life is the corner-stone of all social organizations, and punishment for homicide must in the nature of things, rest inherent in society under the laws regularly passed for the protection of the citizen. The suicide violates the social system by taking a human life, and

strikes at the foundation upon which society rests. We can not admit the legal right of suicide without at the same time consenting to the destruction of the elementary principles upon which society is based.

For the purposes of this discussion we must then inquire :

1st. Is suicide, as a social evil, on the increase? and

2d. What can be best done by society to diminish its increase, either by legislation or otherwise?

In answer to these questions the reader discussed at length the relations to suicide, of age, epidemics, sex, insanity, education, nation and race, domestic troubles, drunkenness, and nationality. In reference to age, the following charts, taken from O'Dea, presented points of interest.

Chart I shows that the largest number of suicides occurs between the ages of twenty-five and fifty-five.

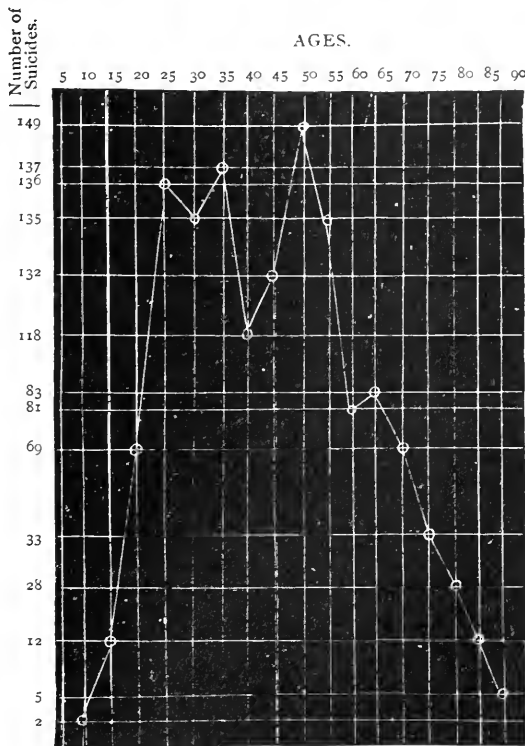
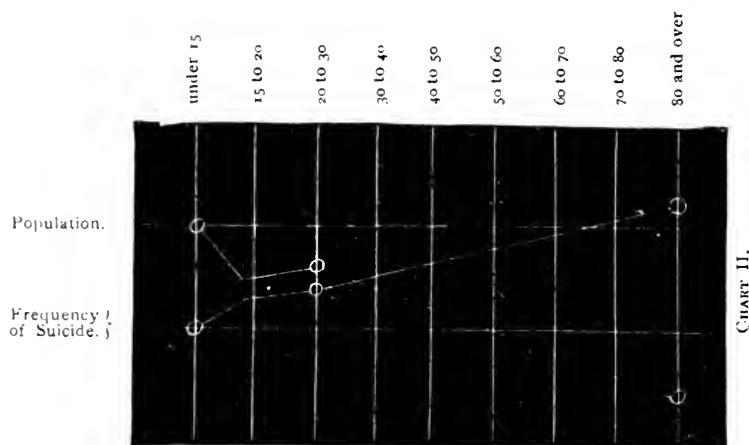


CHART I. Suicide and Age. Both Sexes. Compiled from the U. S. Census of 1870.

O'Dea also submits an interesting diagram or chart comparing suicides at various ages, with corresponding totals of living persons (Chart II).



The influence of sex on suicide Dr. O'Dea shows by similar charts based upon the census of 1870, which place the maximum between the twentieth and fortieth year.

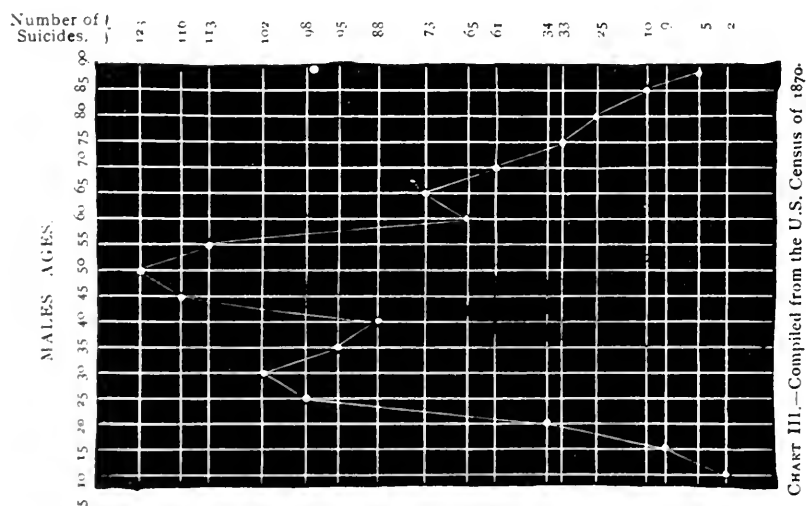
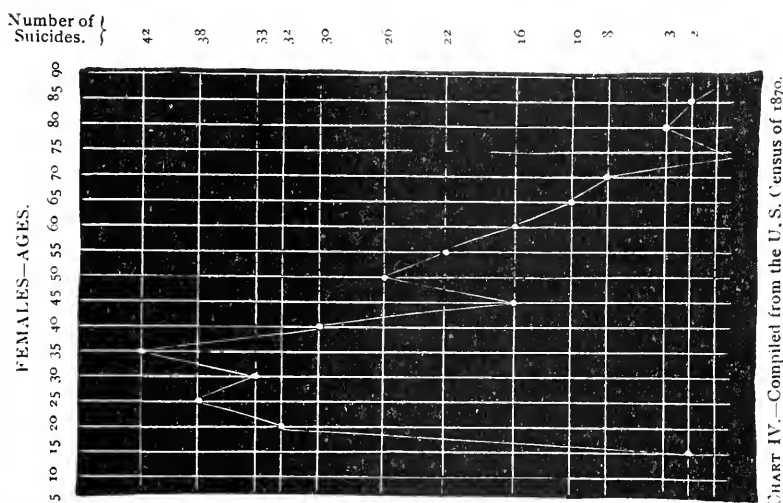


CHART III.—Compiled from the U.S. Census of 1870.

In conclusion the reader said if this Society can be useful in awakening public interest in such remedial legislation as would save the lives of even a few unfortunates who would otherwise perish by their own hand, it would, I feel quite sure, be doing good work in thus acting. If it can be instrumental in bringing into force and play any elements within the commonwealth that shall so intensify and make odious this growing crime of suicide, it ought not to hesitate long in its actions.

The consideration of the feelings and wishes of the family and friends of the suicide, we must all feel sensibly; but higher than these, and broader and nobler than these, is the great good to the State and the public conscience and heart.



I am not aware what action has been taken by the French Society upon this question, or whether any action has been taken, but I have now thought it not inconsistent with my duty to bring the subject to the thoughtful attention of the Medico-Legal Society of New York.

The paper read by Mr. Bell was discussed by Col. B. A. Willis, Dr. S. N. Leo, Dr. M. H. Henry, Dr. R. J. O'Sullivan, Simon Sulton, Esq., Albert Bach, Esq., and others, and the discussion closed by Mr. Bell.

Mr. D. S. RIDDLE moved, that a committee of five be appointed to consider the questions submitted by the paper, to report to the Society. Carried.

Mr. L. P. Holme was elected Treasurer, vice Dr. E. C. Harwood, resigned.

The meeting adjourned.

November 25, 1882. Regular meeting, President CLARK BELL in the chair. The following gentlemen were elected to membership:

Judge W. H. Arnoux, Judge James B. Sheridan, John C. Tomlinson, Esq., Wm. H. Morgan, Esq., John F. Baker, Esq., George N. Messiter, Esq., Wm. L. Findley, Esq., Henry L. Vilas, Esq., Frederick B. Van Voorst, Esq., Albert B. Herrick, Esq., Judge Freeman B. Fithian.

The paper of the evening was read by J. CLARK THOMAS, M.D., entitled "Death by drowning medico-legally considered."

Discussion followed, participated in by Dr. T. C. Finnell, Amos G. Hull, Esq., Prof. H. A. Mott, Col. B. A. Willis, D. S. Riddle, E. C. Spitzka, and others. Dr. Thomas closed the discussion.

Nominations were made for officers for the ensuing year, pursuant to the by-laws.

Dec. 6, 1882. Annual meeting, President CLARK BELL in the Chair. A very large attendance.

The following gentlemen were elected to membership:

Judge Noah Davis, Judge Miles Beach, Dr. Edward C. Mann, Wm. S. Andrews, Esq., Robt. F. Little, Esq., Henry C. Allen, Esq., Abram Kling, Esq., D. H. S. Oppenheimer, Judge Chas. Donohue, Hon. Wm. Dorsheimer, George W. C. Clarke, Esq., John D. Coughlin, Esq., Dr. George S. Conant, A. S. Hammersley, Jr., Esq., Dr. Edward Sanders.

The Society proceeded to the election of officers. The vote was taken by ballot for the office of president.

The tellers announced that 114 votes had been cast, of which Mr. Clark Bell had received a majority.

Mr. Clark Bell was declared duly elected president.

The following officers were then duly elected by ballot: President, Clark Bell; 1st Vice-President, R. Ogden Dore-

mus ; 2d Vice-President, Delano C. Calvin ; Secretary, Leicester P. Holme ; Assistant Secretary, Gilbert R. Hawes ; Treasurer, Jacob Shrady, Esq. ; Librarian, R. S. Guernsey, Esq. ; Curator and Pathologist, Andrew H. Smith, M.D. ; Corresponding Secretary, M. Ellinger, Esq. ; Chemist, C. A. Doremus, M.D. ; Trustees, E. H. M. Sell, M.D., Benj. A. Willis, Esq. ; Members of Permanent Committee, M. H. Henry, M.D., Hon. A. G. Hull.

The papers of the evening, on account of the lateness of the evening and the banquet at the Hotel Brunswick which was to follow, were read by the titles : "What is expert testimony, and who are experts?" by Dr. O. W. WIGHT, of Detroit, Mich. "The coroner system," by Dr. Ed. SANDERS.

The thanks of the Society were tendered Dr. Wight, who was present at the meeting.

The Society then adjourned to attend the banquet.

THE BANQUET.

About 100 gentlemen sat down to the annual banquet at the Hotel Brunswick. Mr. Clark Bell presided. Among the guests were Dr. Wight, of Detroit, Hon. Stewart L. Woodford, Prof. A. Jacobi, Judge Church, of Pennsylvania, and a distinguished array of bench, and bar, and medical men of the city. Speeches were made by Gov. Woodford, Dr. Wight, Judge D. C. Calvin, Judge Arnoux, Prof. Jacobi, Dr. R. S. Sturgis, Chas. A. Leale, M.D., Col. B. A. Willis, Gen. G. W. Palmer, Judge Fithian, Jacob F. Miller, L. P. Holme, Gilbert R. Hawes, and many others.

The anniversary meeting was held at Mott Memorial Hall, in the city of New York, on January 3, 1883, the President, CLARK BELL, in the chair.

The following gentlemen were elected active members :

S. Hepburn, Jr., Carlisle, Pa. ; Hon. Geo. B. Corkhill, United States District-Attorney, Washington, D. C. ; H. S. Gilbert, M.D., Brooklyn. Floyd Ferris, Esq., and James P. Foster, Esq., of the New York Bar, and Dr. G. H. Hughes, St. Louis, Mo., and Prof. Arrigo Tomassia, of Mantua, Italy, were elected corresponding members.

The newly elected officers were duly installed.

The President-elect, Mr. CLARK BELL, then read his fifth inaugural address.

Having thanked the Society for the renewed expression of confidence manifested by his re-election, the President entered into a lengthy discussion of subjects of general medico-legal interest, and of special interest to the Society.

These subjects *seriatim* were: membership; library; publications; finances; legislation; progress of the science of medical jurisprudence in France, Great Britain, Germany, Italy, America, and other countries; necrology and general recommendations, including under this heading, translations, medico-legal journals, heads of hospitals and institutions, courts, and both professions.

A few paragraphs only of general interest are here quoted from this exhaustive report.

Referring to the progress of the science of medical jurisprudence, extended reference was made to the great amount of work done in France concerning medico-legal subjects. An account of the proceedings of the International Medico-Legal Congress, held in Paris in 1881, was given; also a résumé of the work of the Medico-Legal Society of France.

Regarding other countries the reader presented the following observations:

I regret not being able to chronicle that advance in medico-legal science in Great Britain that we had hoped. While there are individuals who give the science careful study and attention, and who have contributed to its progress and growth, it cannot be disguised that the mother-country is behind the other nations in the investigation of medico-legal science; there is no society of medical jurisprudence in Great Britain, nor any journal devoted to its advancement.

While she has done and is doing much for medical science, and did as early as 1803 found a chair of forensic medicine in the University of Edinburgh, which has been followed later by chairs in other colleges, it is a source of regret that the medical men of London do not unite with the leading members of the Bar in a society for the advancement of medical jurisprudence, and aid the labors now going

forward in the various countries of Europe in medico-legal studies.

Germany stands in the front rank in the value of its labors to the science of medical jurisprudence.

We have in our library, Wildorg's "*Bibliotheca Medicinæ Forensis*," which gives the titles and authors of 2,980 treatises, essays, etc., published from about 1600 A. D. to 1818, the great majority of which were by German authors.

Orfila furnishes a list of works on poisons, coming down to 1848, of which 100 were by German, 33 by French, and 19 by English-speaking authors.

Of the 498 literary contributions to the science of medical jurisprudence and toxicology, for the years 1858 and 1859, being 250 to the general science and 248 to the latter subject, Germany contributed 201 of the former and 118 of the latter.

It is the opinion of competent judges that Germany contributes more to medico-legal literature than all other nations contribute.

In other continental countries there is an increasing interest in forensic medicine. The writings of Schleisner, of Copenhagen, place him deservedly in the front rank of modern authors. Dr. Lewis de Grosz, of Buda-Pesth, Hungary, has contributed two valuable works, in 1868 and in 1873, upon medical jurisprudence, and that country has for thirty years maintained a system of legal medical experts, worthy our examination, and based upon advanced scientific grounds. Each tribunal in Hungary has its medical expert, named by the Minister of Justice for life, with the title of Royal Medical Expert. All medical opinions of physicians are submitted to his scrutiny. An appeal may be taken as a last resort, in case of difference of opinion, to either one of the two public professors of legal medicine, the one at the University of Buda-Pesth, the other at the University at Klausenbourg. The study of medical jurisprudence is required by law to be pursued by both legal students in the schools and by medical students in the medical colleges, under competent professors.

Hungary has established at Buda-Pesth a central labora-

tory, presided over by the Legal Chemist of Hungary, who occupies himself exclusively as the chemical expert in all cases of poisoning, or other causes arising in the criminal courts requiring chemical analysis.

In Belgium more attention is being paid to the science.

It is to be hoped that a few years will witness the founding of still other societies within several of the continental countries.

As regards Italy, while the "Biblioteca Medico-Legale," published at Pisa, the two volumes of which were published as late as 1877, brings the works down to later dates (which volumes I have not seen but have seen quoted), the earlier Italian authors on medical jurisprudence have been of acknowledged excellence, Zaechias Paulus, Tortosi, and Bargoletti, Taurini, and the later works of Presutti, Freschi, Laggaritti, and Gandolfi. But rarely, however, do these writers come into English. Beccaria's old work was translated into English in its fifth edition, as early as 1804. Doctor Arrigo Tomassia, a prominent Italian professor of medical jurisprudence, has written a prominent member of this Society, announcing his intention of acting in conjunction with distinguished Italian *confrères* to found in Italy a society of medical jurisprudence for that kingdom. Dr. Tomassia's name has been placed on the list of corresponding members.

In our own country outside of the work of this Society, I think it is fair to claim a general increase of interest not only in both the great professions most intimately connected with the science, but with the thoughtful public.

The Medico-Legal Society of Massachusetts, while being an association composed in the main of the medical examiners appointed by the governor under the new law then adopted abolishing coroners, also takes an interest in general forensic medicine. That society reports the practical admirable working of the new law, and the influence of that movement has been and is now felt in every American State.

There is great public interest felt in the exciting questions of the proper methods of committing and protecting

the insane, and the public mind is aroused to the importance of remedial legislation in the various States, which is by no means confined to this Society. A national organization, entitled "The National Association for the Protection of the Insane and the Prevention of Insanity," has been organized, which embraces distinguished physicians in various States, and which meets in Philadelphia this month at its annual session. Last year valuable contributions were made by prominent gentlemen, which were then read and discussed, and the proceedings published in a journal conducted under the auspices of that body.

The Neurological Society of this city is doing valuable work in a line of the science, which cannot fail to be felt upon the valuable increasing literature of our age.

On motion, the recommendations of the address were considered separately.

The Society unanimously adopted the recommendation regarding the formation of a Committee on Translation from German and French into our Tongue.

The recommendations upon the coroners' question were approved unanimously, and the Committee on Coroners, at the suggestion of the Chair, were instructed to bring in the form of a bill at a special meeting to be held Jan. 24, 1883, for discussion.

The recommendations of the Inaugural as to the enlargement of the Committee on Publication of the Papers of the Society in Volumes, were approved, and Dr. Edward Bradley was appointed on the committee, vice Prof. W. A. Hammond, and Prof. F. R. Sturgis and Hon. R. B. Kimball were added to that committee.

The Society adopted unanimously the recommendations of the Chair in regard to calling upon superintendents of asylums, judges, district-attorneys, and members of both professions of law and medicine to contribute direct to the Society cases arising from time to time, involving medico-legal questions, and the invitation is extended pursuant to the recommendations of the Inaugural.

The recommendations regarding the election of a State chemist and a State laboratory were unanimously adopted;

and, on motion, a committee of five were instructed to prepare a bill and submit the same to the Legislature at the present session.

The Chair appointed as such committee: Hon. B. A. Willis, Chairman; Judge W. H. Arnoux, Prof. A. B. Mott, Prof. W. J. Morton, Gen. Geo. W. Palmer.

The recommendations regarding a quarterly journal of medical jurisprudence were, as suggested by the Chair, referred to the Executive Committee for consideration.

The report of the Permanent Commission, in answer to the Senate resolution of Jan. 10, 1882, and the letter of the Attorney-General and State Commissioner in Lunacy, was read, and was, on motion, made the special order for discussion at the Special Meeting of Jan. 24, 1883.

The report of the Library Committee was read, showing the names of donors and the title of each book donated in which the donors' names had been entered.

Total number of volumes contributed since Feb. 1, 1882, to Dec. 31, 1882, was 376, and 564 pamphlets.

The report also contained the names of donors and list of volumes contributed in the years 1873, 1874, and 1875.

On motion, the Inaugural Address, the Report of the Permanent Commission, and the Library Report were ordered to be printed, and a copy sent to every member and to donors of the volumes.

Messrs. L. Delmonte and Clark Bell were elected life members and patrons, having contributed volumes of the value of \$250 and over.

Mr. David Dudley Field was elected a Life Member by reason of his contribution of \$100 to the library.

The Secretary announced that the resignations of Drs. E. C. Spitzka, E. C. Harwood, N. E. Brill, A. B. Jacobus, and Mr. George P. Avery had been received and accepted by the Executive Committee.

The meeting then adjourned.

NEW YORK SOCIETY OF MEDICAL JURIS- PRUDENCE.

First Meeting, Jan. 11, 1883.

The meeting was called to order in the name of a preliminary committee, by GEORGE P. AVERY, Esq.

Mr. Avery stated in brief the circumstances that attended the present founding of a new Society of Medical Jurisprudence in New York, and announced that the objects of the Society were, among other things, to create a higher standard of expert testimony in medico-legal matters, the investigation of State medicine, as well as advancing the science of medical jurisprudence in general, and the study of "preventive medicine."

The Society already numbered over a hundred members.

Mr. Avery's address was listened to with marked attention and applause.

The chairman then called upon the secretary of the preliminary meeting, Dr. BRILL, to read the minutes of the meeting held Dec. 22, 1882, to effect the organization of the Society.

The temporary secretary read a list of the members proposed, and who had personally accepted, and a list of the committees on various details of organization.

The by-laws had been read at this meeting by Mr. Eller, and accepted.

The following officers had been elected :—Vice-President, Professor J. S. Wight, M.D.; Secretary, Dr. N. E. Brill; Financial Secretary, S. B. Livingstone; Corresponding Secretary, Dr. J. F. Chauveau; Treasurer, Dr. E. C. Harwood;

Trustees, G. P. Avery, A. J. Delaney, Max F. Eller, Dr. T. C. Finnell, Dr. A. M. Jacobus, and Dr. C. S. Wood.

The office of president had not yet been filled. A seal had been chosen, some further matters arranged, and the preliminary meeting of organization had then adjourned.

The report of the temporary secretary was approved, and the meeting proceeded with the further business of the evening, which consisted in listening to a paper, entitled: "The bearing of illusions and hallucinations on testimony," by Prof. J. S. WIGHT, M.D.

Professor Wight's paper consisted, in the main, of an enumeration of instances demonstrating that human testimony could not be relied upon—that the evidence of our senses was to be trusted,—that, in short, human judgment is fallible. Many of these instances were those of the ordinary mistakes of every-day life, ranged without much systematization under the heading of delusions.

Professor Wight's definition of hallucinations and illusions was of a more definite character. The first he defined as an imagined perception of a real thing; the latter as a real perception of an imagined thing.

Dr. HAMMOND was called upon to open the discussion. He said that he had hoped that Dr. Wight would have suggested a remedy for the state of affairs he had described. Few can rely on their perceptions, perhaps no one. Some people never see aright or hear aright. There were numerous historical instances of two opposite accounts of the same scene. If Dr. Wight could not rectify this, he did not advance the matter. He did not quite understand what Dr. Wight meant by an illusion of the moral sense, because he did not believe that there was a moral sense existing in the individual apart from the growth of experience due to his perceptions.

Dr. WIGHT interpolated that he did believe there was a moral sense, and that it constituted a faculty of the human mind.

Dr. HAMMOND thought that in most instances where Dr. Wight had used the term illusion he meant delusion. Mistakes should not be called illusions, nor did he see how a capacity for making mistakes could influence testimony.

Mr. BENN thought the terms illusion and delusion should be restricted to disease. Instances of the kind brought forward by Prof. Wight were sometimes mistakes, sometimes delusions.

Mr. ELLER said that his view of Dr. Wight's paper was that it was to be taken to mean that witnesses may be sincere and honest, and yet may recite conclusions based upon facts that never existed. An instance of this was a baseless claim of rape during anæsthesia. Juries must be taught that these delusions may exist; this was the function of the lawyer guided by the doctor.

Dr. SPITZKA thought that it was a canon of psychology that there are moral sentiments in the human race, and that there was such a thing as a fundamental moral failure of these sentiments. For example, a child born of the criminal classes, but early transplanted among excellent moral surroundings would often become a prostitute and a thief. The moral sentiments, for instance, are analogous to color-perceptions. Training implants upon the race the moral sense. He would substitute for Dr. Wight's definition of hallucination this, viz: a subjective perception of an object not really present.

Mr. HOCHSTETTER begged to be excused from making any remarks.

Mr. LIVINGSTONE suggested that more should be done to correct the perceptions by training. In children the early prattle is not noticed, and habits of inaccuracy are very early cultivated. The expert should always study to correct himself, and train his powers of observation.

Dr. HAMMOND arose to correct the impression conveyed by Dr. Spitzka. He did not say that there was no moral sense—he said that the moral sense was not born with a man; nor did he say that there were no moral sentiments. Criminals, of course, might be said to have no moral sense, but this was because they were deficient in some part of their intellectual organization, and, therefore, could not be educated up to a moral sense.

Dr. WIGHT, in summing up and concluding the discussion, maintained that the moral sense was an original inherent faculty of the mind, born with the individual.

The next paper of the evening was by L. C. Gray, M.D., and entitled "The case of Margaret Keppel, the Brooklyn child-abductor." The paper consisted of a simple narrative of the circumstances of the child-abduction, and did not therefore draw forth discussion.

The chairman announced that at the next meeting a paper would be read by Dr. Hammond, and also one on the "Medico-legal phase of the penal code."

The Society then adjourned.

PROCEEDINGS OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

ARSENICAL PARALYSIS.

By CHARLES K. MILLS, M.D.,

NEUROLOGIST TO THE PHILADELPHIA HOSPITAL; PROFESSOR OF DISEASES OF THE MIND AND NERVOUS SYSTEM IN THE PHILADELPHIA POLYCLINIC AND COLLEGE FOR GRADUATES IN MEDICINE.

[Read before the College of Physicians of Philadelphia, February 7, 1883.]

On November 2, 1882, at Norristown, Pennsylvania, occurred a series of cases of arsenical poisoning almost without parallel. The poisoning was brought about chiefly through eating pumpkin-pie, which it was subsequently proved contained a large amount of arsenious acid. The story of the tragedy does not come within my province in the present paper.

On the 24th of December, 1882, I saw one of these cases at Norristown with Dr. E. M. Corson, the physician in attendance. On the 3d of January, 1883, he was brought to the Philadelphia Orthopædic Hospital and Infirmary for Nervous Diseases, to be under the care of Dr. S. Weir Mitchell. I am indebted to Dr. Mitchell for great courtesy in affording me the opportunity of thoroughly studying the case at the hospital, and now of presenting it to the College.

Dr. G. B. Massey, Electro-Therapeutist and Assistant Physician to the hospital, carefully studied with me the electrical reactions. The results of our examinations will be given at the proper place. Dr. Browning, Resident Physician, also rendered assistance in investigating and recording the case.

H. G., æt. twenty-four, single, a lawyer, prior to Thursday, November 2, 1882, was in good health. He was taken sick immediately after rising from the dinner-table, having eaten freely of the pie which was subsequently found to contain the poison. He had an attack of vomiting which lasted a few minutes only. He had several similar spells of vomiting during the afternoon, and from Thursday night until Saturday morning the vomiting was almost continuous. It then began to subside, ceasing entirely Monday afternoon, except that at two o'clock Tuesday morning he vomited a dark grumous mass. Just before vomiting this mass he had a sensation of constriction or contraction in the muscles of the chest and throat, and the facial muscles were much contorted. He was not purged at any time; in fact, his bowels were not opened from Thursday, November 2d, until Wednesday, November 8th. During the whole time that the vomiting persisted he had but little pain, scarcely more than would be accounted for by the retching and vomiting. Prostration was very great from the first. Tuesday night, November 7th, he attempted to get out of bed, but fainted, and remained for some time in a semi-conscious state. About this period he began to have marked fever.

On Wednesday, November 8th, and therefore six days after taking the poison, the patient noticed for the first time a sensation of aching and numbness chiefly about the knees. The numbness continued, and, in a few days, extended toward his feet. He still, however, had fair use of his legs, although, of course, they were extremely weak. Three days after the appearance of the numbness in his lower limbs the same sensation began in the fingers of both hands, and soon extended to the wrists, beyond which it never passed.

His brain remained unaffected.

His legs below the knees were now almost completely paralyzed, and there was some loss of power below the elbows.

His face was considerably puffed and swollen.

His general condition and his special symptoms remained as just recorded, without any change worthy of note, until December 1st, four weeks after the ingestion of the arsenic, when he began to suffer great pain. The pains began in the knees, and speedily invaded the legs below the knees, and the feet, progressing in the same course as the numbness had previously taken. Aching was always present, but frequently the pains were boring, tearing, or lancinating. They were accompanied by a sensation like that

produced by a strong faradic current. Two days after the coming on of the pain in the legs, the fingers and hands also became the seat of aching. In one week the pains began slowly to abate; but throughout December, and, indeed, up to the present time, he has had more or less pain, varying very much in character. By the middle of December, the numbness and aching, which had previously been below the knees, had extended above them a distance of several inches. His lower extremities felt as if encased in a cylinder, as high as the limits of the numbness. The symptoms in his upper extremities did not change noticeably. The loss of power in the thighs increased with the spreading upward of the sensory perversion.

I will now give the results of my examinations into the condition of the patient. He was first examined by me December 24, 1882, but the notes here given are from examinations made between January 10th and January 17th, 1883, nearly two months and a half after the poisoning.

He presented no brain symptoms, and no disturbances of the special senses of sight, hearing, taste, or smell. He slept fairly well until midnight, and then was usually restless and unable to get into a comfortable position.

He was much emaciated. Wasting of the limbs was extreme. The following measurements were taken:

Circumference of right thigh	11 inches.
“ “ left “	10 $\frac{3}{4}$ “
“ “ right calf	8 $\frac{1}{4}$ “
“ “ left “	8 $\frac{1}{4}$ “
“ “ right arm	7 “
“ “ left “	7 “
“ “ right forearm	6 $\frac{1}{2}$ “
“ “ left “	6 $\frac{1}{4}$ “

Paralysis below the elbows was marked, but not complete. The extensors and supinators were most decidedly affected. The fingers could only be flexed about one half. Movements of the thumbs and the small movements of the fingers were impaired. The loss of power was slightly

greater in the right limb than the left. The following were the registerings of the dynamometer :

Right hand 35
Left " 35

At both elbows were marked contractures at about right angles. The angles could be reduced to about 160° , but any attempt to carry the straightening further caused pain in the flexor tendons.

Both legs were paralyzed completely below the knees. All movements of the toes and feet were abolished absolutely.

The legs in their entirety showed a tendency to rotate outward ; the feet, however, assuming the equino-varus position. Contractures were not present at the knees, but at times the limbs would assume a semiflexed position, these acts of flexure being accompanied by cramp-pains in the flexor muscles of the thighs. He had these jerking both in the legs and arms not infrequently.

The bowels were very torpid, requiring cathartics. Some dribbling of the urine occurred for a few days in the early part of January, and then passed away. For a few days, also, he had some pain, which he referred to the lower part of the urethra, just as the discharge of urine was completed. At the time of examination, January 17th, the urine was passed slowly, but without pain.

The urine showed an excess of phosphates ; but neither albumen nor sugar were present.

Farado-contractility was abolished in all muscles below both knees. Above the knees, the extensor and flexor groups and the sartorius were examined, and the faradic reaction was found to be greatly diminished, but not wholly absent. The response was better to nerve than to direct muscular applications.

The muscles below the knees would not respond to weak galvanic currents. To currents of medium strength they responded, but not normally.

The reactions were those of degeneration. Anodal closing gave the strongest reaction ; cathodal closure came next.

Slight contractions followed both anodal and cathodal opening. The contractions were at first sluggish, though vigorous, increasing after a few trials, and then quickly exhausting. The reactions, expressed in the German formula were :

AnSZ';
 KaSZ ;
 AnOZ ;
 KaOZ.

In both upper extremities farado-contractility was decreased, but not lost ; the diminution was much greater below than above the elbows. Below the elbows the faradic excitability was rapidly exhausted.

To the galvanic current the reactions of degeneration were present, but not so decidedly as in the legs. Anodal closing gave stronger reaction than cathodal. With moderately strong currents tetany was produced at the anode.

Both patellar reflexes were abolished.

The cremaster-reflex was studied, and presented some interesting points. The retraction of the testicle, known as the cremaster-reflex, which has been thoroughly discussed by Dr. S. Weir Mitchell (*JOURNAL OF NERVOUS AND MENTAL DISEASE*, October, 1879), can usually be awakened by irritation of a certain definite region of the thigh extending from the groin nearly to the knee. In young lads, as Dr. Mitchell has shown, this reflex is easily caused by touching or pinching the whole thigh, with the exception of a band of skin which nearly always may be represented as forming the postero-lateral third of the circumference of the thigh. Sometimes, however, the cremaster-reflex region is far less and sometimes far more extensive. It rarely extends below the knees, although, as stated by Dr. Mitchell, it may in the healthy boy include a large part of the calf of the leg. In adults the excitor region is often much restricted, and it may even be absent.

Gentle irritation of the skin of the inner aspect of the right thigh and leg of the patient, as far down as the malleolus, caused very vigorous retraction of the right testicle. Sometimes, but not usually, both testicles were retracted.

Similar irritation of the left thigh and leg led to movement of the left testicle, which was marked, but not as vigorous as that exhibited by the right from irritation of the right limb. Now and then, in making this test, the unilateral movement of the left testicle, from irritation of the left thigh and leg, was followed a moment later by an imperfect retraction of the testicle of the opposite side. A similar effect was not produced in any of my examinations by irritation applied to the right limb; neither did excitation of one side cause motion in the other side only.

Dr. Mitchell says: "As a rule, which has infrequent exceptions, irritation of one side produces unilateral movement of the testicle of the same side. There are two forms of violation of this law. In the first, irritation of one thigh causes motion of the testicle of the same side, and also, a moment later less complete action of the testicle of the opposite side. In the other case, touching or pinching certain parts of the inner, and usually of the lower, half of the thigh, causes reflex cremaster motion on the other side only; while like irritation in other parts higher up give rises only to unilateral activity on the same side."

On admission the surface temperature of each calf was 95° F. He usually complained of his legs feeling to him unduly warm.

Late in November transverse white bands were observed across the finger nails about two lines from their posterior limits. The nails were not furrowed, but simply showed white markings. As the nails have slowly grown these lines have remained.

The fingers and forearms were hyperæsthetic, but at the same time the patient could not determine with any accuracy as to one or two points on testing him with the æsthesiometer. A similar condition, but more marked, was present in the feet, legs, and as high as the middle of the thighs. The muscles were very sensitive.

Applications of hot and cold water were discriminated readily.

I will give the record of pulse, respiration, and temperature, for two weeks, from January 9th to 23d.

		PULSE.		RESPIRATION.		TEMPERATURE.	
		Morning.	Evening.	Morning.	Evening.	Morning.	Evening.
Jan.	9		107		26		99° F.
"	10	134	140	24	24	98.4° F.	99.2
"	11	134	132	24	24	98.6	98.6
"	12	136	132	24	24	98.8	99.1
"	13	140	128	28	24	98.6	98.8
"	14	140	138	24	28	99.8	98.8
"	15		140		24		98.4
"	16	136	128	24	24	99	98.8
"	17	148	128	24	28	98.8	99.6
"	18	136	124	24	24	99	99.8
"	19	132	116	24	20	98.4	98.6
"	20	124	116	24	24	98.6	98.6
"	21	130	116	24	24	97.8	98.6
"	22	128	120	24	24	98	98.8
"	23	124	136	24	25	99	99.4

The pulse, therefore, during the time of these observations, ranged between 107 and 148, and was nearly always more rapid in the morning than in the evening.

The respirations ranged between 20 and 28, standing usually at about 24.

The temperature ranged between 97.8° F. and 99.8° F., but commonly was not much either way from the normal.

On admission to the hospital the following treatment was instituted by Dr. Mitchell: Applications of ice and hot water alternately were made three times daily for ten minutes at a time to his arms and legs from the elbows and knees downward. Surface massage with cocoa-nut oil was used once daily. Ice-bags were applied to the spine for one to two hours twice daily. One grain of the extract of ergot of the new United States Pharmacopœia was given every two hours, and this was rapidly increased until thirty grains daily were administered. After continuing the use of the ergot for a week the patient's stomach became disordered, and tincture of belladonna in doses of five drops every three hours was substituted. Fifteen grains of chloral were administered occasionally, and sulphate of morphia, at first $\frac{1}{25}$ th grain, and eventually increased to $\frac{1}{16}$ th grain, was ordered, to relieve pain when necessary.

He was placed on the ordinary full diet of the hospital,

with the addition of milk three times daily and beef tea twice daily.

I made an examination of the patient to note the effects of treatment to-day (February 7th). He has improved steadily day by day. His general strength has increased. He has regained almost entirely the use of the muscles above the knees. He has also much better use of his fore-arms and hands, particularly the latter, being now able to pick up small objects. The "wrist-drop" has improved greatly. He has much less pain, aching, and numbness below the knees; the legs below the knees, however, still remain paralyzed, but are not so completely helpless. He has every appearance of progressing steadily to recovery.

Having presented this case as fully as possible, I will give in a few words all the information I have been able to obtain as to paralysis and other nervous symptoms shown by the other victims of the poisoning.

Six others altogether, besides our patient, were poisoned. One of these was a little boy, four years old, I. S., to whom a piece of the fatal pie was given as a reward for going on an errand. He died within ten hours, and I have no knowledge of observations as to paralysis or other manifestations of involvement of the nervous system. Probably his death occurred too soon to allow any such observation to be made.

M. S., a sister of the little boy, ate a very little of the pie, and suffered to some extent, but not seriously.

C. H. G., the father of the patient, died November 8th, six days after the ingestion of the arsenic. Besides severe gastro-intestinal symptoms, he suffered with pain in his head, back, and limbs, was delirious for some hours, and was almost completely paralyzed.

Mrs. G., mother of the patient, ate a little of the pie, November 2d, and had an attack of vomiting. On the 4th she ate a piece of custard, which was also found to contain arsenic, and was attacked with vomiting. A few days later weakness of the legs, with aching and numbness, came on, and the right foot and leg became swollen and inflamed. She gradually recovered.

Mrs. V. ate a mouthful or two of the pie and custard containing the arsenic, and suffered with vomiting, etc., for three days. She has since had paresis and paræsthesia of the legs.

Mrs. F., who ate freely of the poisoned food, suffered severely

from gastro-intestinal symptoms. She is now under the professional care of Dr. H. N. Umstead, of Yerkes P. O., Montgomery Co., Pa., who has courteously written to me about her condition, and the substance of whose communication I will give. Dr. Umstead states that Mrs. F. has been paralyzed from the elbows to the ends of her fingers, and from the knees to the toes. She complained of numbness and coldness in the limbs, and a feeling as if a cord was tied tightly around the waist. She had extreme pain in the paralyzed extremities. She has greatly improved, is riding out daily, can stand without aid, and can even walk a little with assistance. She still has some pain in the hands and in the soles of the feet, but they are not tender to the touch. She has some anæsthesia of the hands and feet, especially of the latter. She begins to enjoy her food, for which at first she had great loathing. Her bowels are moved once, and she urinates twice, daily, but has not quite the natural sensation when the bowel or bladder is evacuated. Dr. Umstead states that Mrs. F. and Mrs. V., whom he also treated, make five cases of arsenical paralysis which have fallen under his care during his professional career.

A careful analysis of the history and symptomatology of the case detailed must compel me to conclude that in well-marked arsenical paralysis we have to deal with a diffused myelitis; decided motor, trophic, and sensory bilateral phenomena being present.

With the assistance of Dr. J. H. Lloyd, one of the staff of the nervous dispensary of the University Hospital, I began the preparation of a *résumé* of the literature of arsenical paralysis, when the JOURNAL OF NERVOUS AND MENTAL DISEASE for October, 1882 (edited by William J. Morton, M.D., of New York), containing an admirable article on the subject by Professor E. C. Seguin, came to hand. In this paper the literature of the subject is given with considerable fulness, and to it I would refer those interested.

Beginning with Abano, who flourished as early as the thirteenth century, the authorities quoted or referred to by Professor Seguin are Forestus, Zacchias, Hahnemann, Thilenius, Brodie, Orfila, Christison, Graves, Huss, Leroyd' Étioles, Imbert-Gourbeyre, Smoler, Jaccoud, Seeligmüller, Popow, Rosenthal, Romberg, Erb, Hammond, and Da Costa.

I will refer here only to the observations of Christison and Popow. Christison describes two classes of cases of arsenical poisoning in which the victims die early without paralysis, and a third class of what he terms subacute cases, with moderate gastro-intestinal inflammation. "In the latter stage these cases are apt to show marked nervous symptoms: coma, epileptoid attacks, mania, tetanus, hysterical seizures, partial paralysis resembling lead, paralysis in affecting the extremities; contractures may exist."

In 1881, Popow, of St. Petersburg, published an essay on the pathological anatomy of arsenical paralysis as produced artificially in animals. The work of Popow was carried on under the guidance of the distinguished neurologist and microscopist, Professor Mierzejewski, and Seguin considers his essay as in many respects the most important contribution yet made to the subject. Popow concludes that arsenic, even in a few hours after its ingestion, may cause acute central myelitis or acute poliomyelitis; that in chronic cases pathological changes are found in the white as well as in the gray substance, constituting a diffused myelitis; and that the peripheral nerves remain normal, even three months after intoxication. Seguin gives condensed accounts of a few of the cases reported in the literature of the subject, and also reports three cases of his own, all would-be suicides with Paris green. His conclusions are practically the same as those of Popow. According to Seguin, whether the myelitis is strictly arsenical, *i. e.*, caused by the direct effect of the arsenic on the tissue of the spinal cord, or whether it is produced (as are many forms of myelitis) by the irritation of peripheral nerves (cutaneous, intestinal, and gastric nerve-endings), is a question which cannot at present be definitely solved, but which presents an interesting field for future research and speculation.

Dr. Lloyd has collected the following references to authorities and cases in addition to those cited by Seguin:

Beck ("Elements of Medical Jurisprudence," sixth edition, vol. ii, 1838) gives three classes or varieties of arsenical poisoning. In the third variety there is, first the inflammatory action; then, when this recedes, comes the second stage, that of nervous involvement. The nervous symptoms vary

"from coma to an imperfect palsy of the arms and legs, and between these extremes are observed epileptic fits or tetanus."

Taylor ("On Poisons," etc., 1848) gives several cases where the symptoms of *narcotism* (or general paralysis of the nervous system) were marked.

A man swallowed, by accident, some arsenic early in the morning. He went to work for several hours afterward; and was then gradually observed to sink into a drowsy state, and died that night with no complaint of pain.

A child, aged two and a half years, died *narcotized* two hours after taking the poison.

Wharton and Stillé ("A Treatise on Medical Jurisprudence," second and revised edition, 1860) make mere mention of palsy as a symptom which is apt to occur late in the case.

Taylor ("A Manual of Medical Jurisprudence," seventh American edition, 1873) speaks of local paralyses, preceded by numbness or tingling in the fingers and toes, as common consequences of chronic arsenical poisoning.

According to Stillé ("Materia Medica and Therapeutics," 4th ed., vol. ii, 1874, p. 816), arsenical paralysis most frequently affects the lower limbs first, extending gradually to the arms; but it is more permanent in the legs, continuing for months or even years. It is accompanied with cramps, spasmodic movements, numbness, and formication. The cutaneous sensibility is impaired, and the patient generally complains of coldness in the parts affected.

H. C. Wood ("A Treatise on Therapeutics," etc., second edition, 1876) speaks of paralysis, which follows non-fatal cases, and affects preferably the lower extremities, commencing and remaining longest in them; does not select the exterior muscles, and is almost always accompanied by anæsthesia, or at least by numbness and formication, and by coldness of the extremities. He quotes experiments on frogs; mostly from Sklarek.

Ringer ("Hand-Book of Therapeutics," ninth edition, 1883) refers to his experiments on frogs. He found paralysis of sensation, reflex action, and voluntary motion. He believes that the paralyzing action is exerted on the cord first, then

on the nerves, and last on the muscles. The difference may be noted between Ringer and Seguin, that Ringer does not refer all pathological changes to the cord. He regards the arsenic as a "protoplasmic poison," affecting all tissues. He says that frogs are sometimes only apparently paralyzed; *i. e.*, sensation is lost, and hence there is no response to external irritants, but if laid on their back, they turn themselves over.

"The Index-Catalogue of the Surg.-Genl.'s Office" gives the titles of forty-three books on the physiological and therapeutic effects of arsenic, but nothing special on its paralyzing effects.

Gibb (Neuralgia and Paraplegia, Supposed to be Due to Long-Continued Use of Arsenic, etc., *Trans. Path. Soc. Lond.*, ix, p. 442) records the case of a lady who had taken arsenic, mostly Fowler's solution, for many years for a skin affection. She had attacks of acute neuralgia in groins, shoulders, and sides. These pains were considered due to arsenic by Sir Jas. Clark, Dr. Robert Lee, and Dr. Copland, who all saw the case. Afterward she lost all power over her lower limbs, which felt numb, although sensibility remained perfect. This retention of sensibility is at variance with other observers and experimenters. After death the abdominal and thoracic glands were found enlarged, and traces of arsenic were found in the liver and in the lumbar vertebræ, although the drug had not been taken for more than seven months before death.

Colton (Arsenical Paralysis, *N. Y. Journ. of Med.*, September, 1850, pp. 177, 178) mentions the case of a patient who swallowed, accidentally, some arsenic, and was admitted to the hospital under Dr. Colton's care. The primary effects of the poison had been successfully combated with proper remedies. Seven days afterward, when feeling quite well, he was attacked with violent cramps in index finger of the right hand, spreading to other fingers, then to other hand, and finally to the feet. The pain in hands subsided as the feet became affected. The cramps lasted thirty minutes. He then fell into sound sleep, it being night, but in the morning he found to his surprise that he had lost the use of the affected parts. This paralysis had

continued unchanged for five months. There was also a feeling of heat and numbness in the arms from the fingers to a little below the elbows, and in the legs from the toes to a little below the knees. Lancinating pains also occurred in those parts daily from 5 P. M. to midnight. He improved slowly under the use of quinia, strychnia, and electricity.

MacCready (Death from External Application of Arsenic, *Am. Journ. Med. Sci.*, July, 1851, p. 259) relates that a woman rubbed white arsenic mixed with gin on the head of her child suffering with favus. The child died in less than forty-eight hours with its legs completely paralyzed.

MacLagan (On the Arsenic Eaters of Styria, *Edinb. Med. Journ.*, 1864, p. 200) visited Styria in the year 1864, and had personal interviews with two "arsenikophagites"; one of whom ate in his presence nearly five grs. of arsenious acid, and the other nearly six grs. The urine of both of these men was carefully bottled and taken back to Great Britain, where a chemical examination revealed arsenic. The physiological effects on these toxicophagi are described as being only tonic and stimulant, especially improving the wind and increasing sexual desire. MacLagan's evidence is strong, yet perhaps not such as would be received in a court of justice, as the men were not kept continuously under observation. The point of chief interest is that he says nothing about paraplegia or any acute or chronic poisoning symptoms among these arsenic eaters.

Dr. Lloyd has called my attention to a case, not before reported, of suicide with arsenic, which happened some years ago in Bucks County, and was under the care of the late Dr. Hendrie. Anæsthesia and paralysis were so marked that the man declared that his legs were cut off, and died in that belief.

After the reading of the paper, Dr. S. WEIR MITCHELL asked if the urine had been examined with care in the early stages of the case? Of late there had been no evidence of trouble, and if at a former period there was albumen it was no longer present.

Perhaps it was not known to all the Fellows that arsenic, in medicinal doses, was in rare cases, as Dr. M. pointed out many years ago, the cause of more or less albuminuria.

As concerned diagnosis, Dr. M. had always looked on these grave forms of paralysis from arsenic as due to myelitis, and saw much in this case to support and nothing to oppose this opinion. Among the symptoms on which the author of the paper had dwelt least were the frequent twitches of the limbs especially in sleep, and the intense general tenderness of the muscles, which disappeared readily under the use of massage.

The pearly tinted band on the nails, about one line wide, had not the slightest indentation, and was unlike any thing in the way of an indication of arrest of nail growth which has ever come to Dr. M.'s attention.

Dr. ROBERTS BARTHOLOW said that these forms of arsenical poisoning, affecting the nervous system, as described in the very interesting paper by Dr. Mills, present many remarkable features. It has long been known that there are cases in which profound depression of the nervous centres, coma, and insensibility have been caused by large doses of arsenic, without any local irritation—without gastro-intestinal inflammation. On the other hand, Virchow informs us that there are cases of acute arsenical poisoning which cannot be differentiated either in respect to the symptoms observed during life or in the morbid anatomy from the algid stage of cholera. The author of the paper did not refer to the fatty degeneration of the intima of the vessels, or to the same change occurring in the epithelial structures of various organs, but he gave an account of the other changes, all of which show the profound alterations to which the tissues of the body in general are subjected, and which tend to prove the correctness of Ringer's view, that arsenic is a protoplasmic poison, and as such, leaves no part of the organism untouched. There is doubtless a community of actions amongst the poisonous metals, and all affect the system to a less or greater extent in the same way. The metals are so largely employed in trades and in domestic life in our day, that many cases of obscure nervous diseases may have their origin in this way. In respect to the treatment pursued, he would have directed more attention to securing elimination of the poison. However, on this point it must be admitted

that the time during which elimination can be effected is rather short. The chemists tell us that if, in a fatal case of arsenical poisoning, the patient lives a week after the poison has been swallowed, its detection may be impossible, so rapidly is it eliminated.

In reply to Dr. Bartholow, Dr. MITCHELL said the time for attempts at elimination had passed, as two months had elapsed between the poisoning and the patient's admission to the hospital.

Dr. S. W. GROSS asked whether any observations had been made with regard to the genital functions in the case reported.

Dr. J. T. ESKRIDGE said that the lecturer had not referred to changes in the blood in acute arsenical poisoning. Brodie, quoted in Stillé's work on "*Materia Medica and Therapeutics*," observed a fluid condition of the blood in animals poisoned by arsenic. He called attention to the fact, because it was another proof of the profound devitalizing influences of the drug when taken in toxic doses.

Dr. MILLS, in reply to the questions which had been asked, stated that there was impairment of the genital functions, but that sexual desire and evidences of sexual power were present. So far as he knew, the urine had not been examined in the early stages of the case. Efforts were made by Dr. Corson, under whose care the patient came, to eliminate the poison by cathartics. When he saw the patient first, the time had passed to derive much benefit from this plan of treatment. Iodide of potassium was administered.

Reviews and Bibliographical Notices.

Des maladies mentales et nerveuses. Par E. BILLOD, Médecin en Chef, Directeur Honoraire des Asiles d' Aliénés de la Seine, etc. etc., 2 vols. 8vo., pp. 618-515. Paris : G. Masson, 1882.

Dr. Billod has for some years held a prominent position among French alienists, and has had thorough training and abundant opportunities in the several institutions where he has served. That he has utilized his advantages is known to the readers of the *Annales Psychologiques*, to which he has been a copious contributor since its foundation in 1843. These numerous papers he has collected, and they form the chief material of the present volumes. They treat of many important and interesting subjects in mental pathology and symptomatology, with several medico-legal reports, and the author's views on the Administration of Asylums. The work may be regarded, on the whole, as a valuable contribution to psychological medicine.

The first article,—*Recherches et Considérations relatives à la Symptomatologie de l'Epilepsie*,—originally published in 1843, disputes the common view at that time supported by Beau and others, that the initial cry in an epileptic seizure was really an expression of surprise on the part of the patient at the suddenness of the onset, and an interjection of alarm at the imminence of falling down, and maintained that it is due to laryngeal spasm, as generally held at the present day.

In a note addressed to the Academy of Medicine during the discussion of the late Dr. Trousseau's paper, "*De la Congestion Cérébrale Apoplectiforme et de l' Epilepsie*," in 1861, Dr. Billod holds that epilepsy may be "*tout à la fois fille et mère de congestion cérébrale*." The convulsive fits, so common in general paresis, he styles *symptomatic epilepsy*, that is, symptomatic of congestions. We meet occasionally with epileptiform spasms in cases

of apoplexy, the result of congestion or of hemorrhage which are due to these factors, and amongst Dr. Trousseau's cases, several at least may be classed under this head. Where epilepsy exists in connection with the apoplectiform cerebral congestion of Trousseau it may always be regarded as an effect and not a cause.

Dr. Billod undoubtedly anticipated Dr. Brown-Séquard, in expressing the opinion that, in violent and prolonged serial paroxysms, composed of fits rapidly increasing in number and intensity, the congestion of the nervous centres, at first an effect, may, in its turn, become a causal factor. This view, advanced hypothetically by the author in 1843, received subsequently positive confirmation by the experiments of Brown-Séquard, in which blood charged with carbonic acid was injected into the carotids and cerebral arteries of animals, and epileptiform convulsions followed. In these seizures, with subintractant or overlapping fits, prolonged anæmia is produced by the constant spasms of the respiratory muscles, and the epileptic thus suffering is placed in the same condition as the animals of Dr. Brown-Séquard's experiments. The blood, imperfectly aerated, becomes saturated with carbonic acid, and is a direct poison to the ganglionic masses.

Our author too, we think, was the first to call attention to the reflex phenomenon of an *aura* as a terminal symptom of an attack, in cases where it had been present at the beginning, and which he named *aura epileptica de retour (redux)*.

Four interesting cases of *hysteriform epilepsy* in men are given, and though cited by Landouzy, Briquet, and others as examples of hysteria in the male, they unquestionably should be classed as epilepsy with hysteriform phenomena, that form of nervous disorder having been so well studied of late years as to leave no doubt of their nature.

Two excellent chapters are devoted to the discussion of *épilepsie latée*, which took place in the Société Medico-Psychologique in 1870. Ten years before the publication of Jules Falret's essay on this subject (1860-61), Dr. Billod had stated incidentally, in a paper on general paralysis, that the happening of paralysis in connection with insanity, and of insanity with epilepsy, were not simply complications, but distinct forms of these two disorders, having special characters of their own,—two expressions of the same disease.

Our author seems at an early date to have recognized the relations of locomotor ataxy and general paralysis. The mental state of general paretics is the subject of an interesting memoir, and a case of apparent recovery from the disorder is given.

A short but interesting communication to the Société Médico-Psychologique treats of the insane who are conscious of their mental trouble—(*Des Aliénés avec Conscience de leur État*). This condition Dr. Billod found in 61 males out of 378, and in 19 females out of 350. Of these 61 males, in 53 the insanity was consecutive to alcoholism, and in 5 females out of 19. This leaves 8 males and 14 females, in whom the alcoholic influence is excluded. In the 61 males it was complete in 49, partial in 12; and in the 19 females it was complete in 12 and partial in 5. The greater frequency of this condition in the female Dr. Billod attributes to the common forms of mental trouble in women being more or less neuropathic, or hysterical, and, as Moreau de Tours has said, "one of its most salient characters, and the one that first attracts our notice, is the consciousness, sometimes quite perfect, at others more or less so, that subjects have of the state of the intellectual derangement they are suffering from. Shipwreck of the faculties is complete in only exceptional and essentially transitory cases. If such patients are questioned during their wildest wanderings, when they are abandoning themselves to all sorts of eccentricities and extravagances, when every sentence betrays the disorder of their minds, and they seem wholly under the control of delusional convictions and hallucinations of every sort, the first word addressed to them seems to bring them to their senses, and they are themselves again. They acknowledge that they did not know what they were saying, that there is nothing real in their hallucinations, etc. etc., which, however, does not hinder them, the moment you cease talking to them, and keep in check their vagabond imaginations, to forthwith relapse into the state you have found them in." Moreau also points out that the delusions which have their origin in persistent neurotic conditions, and are developed along with the psychical troubles, offer a close analogy to those which are due to the action of certain drugs upon the nervous centres, haschisch especially. Under its influence, no matter to what extent, the individual retains full consciousness and appreciation of his state. A good example of this condition is seen in those amongst the insane who are dominated by a morbid impulse, whose nature they fully recognize, and deplore their inability to resist its influence. A number of such cases are related by our author. Jules Falret's writings are those which are best known in connection with this mental state, but he has failed to call attention to a fact sometimes noticed amongst the insane after

recovery. We know that a large number of such have full consciousness of their former mental state, tell you exactly how they felt, what they experienced, and correctly appreciate their past delusions. This state is properly regarded as highly favorable, as showing a full return to mental health, and often enables us to forecast the probable durability of the cure. Our author insists on this more or less perfectness of the judgment of the cured insane of their former state as the most important factor to be considered in estimating the probability of relapse ; that it differentiates between a remission more or less prolonged, and full and probably permanent recovery. According to him the proportion of relapses in the insane discharged cured, but, who will not admit they have been insane, is sixty per cent., whilst in those who have full consciousness of their past delusions, hallucinations, or illusions, it is only ten per cent. The whole memoir will repay careful perusal, and should be read in connection with the more elaborate and, perhaps, the most valuable ones in these volumes—*Des Lésions de la Volonté*, and *Des Diverses Formes de Lypémanie*.

Since Pinel and Esquirol, the French alienists have oscillated between two exclusive pathogenetic schools—the somatic and psychological,—to finally adopt a third, the clinical, at the same time recognizing what was really of value in the other methods, both of which, when singly followed, had proved so unsatisfactory. Pathological anatomy, looking to the brain and its membranes for explicative lesions of the various troubles which characterize mental derangement, failed to give the required solution; and the prominent alienists of that day, as Falret père, F. Voisin, Par-chappe, and others, sought in a psychological analysis of the mental faculties of the insane an answer to their inquiries. This method was too one-sided, and was a failure. The explanation may be found in this sentence of Lasègue : “There is a proverb,” he writes, “which says : Every branch, separated from its trunk, must perish. Now, this is true as regards mental medicine ; it needs to be attached to the trunk of general medicine, otherwise it cannot live.” How well this may be said of other specialties ! Whilst in our studies of the entity mental alienation, both morbid anatomy and psychology ought not to be overlooked, and indeed should have a large part, they should both be subordinated to the accurate observation of clinical facts, and to the condition of the system as a whole. Whilst in most of Dr. Billod’s papers cases are cited in support of this view, there is, particularly in those

written some thirty-five years ago, too much weight given to the psychological method; without impairing their practical worth, it renders them more or less imperfect as contributions to mental medicine. Dr. Billod is now, and has been for some years, a convert to, and advocate of, the clinical or mixed school.

The note (vol. i, p. 276) and the memoir (p. 413) read before the Academy of Medicine, 1867, on "*Les Intervalles dits Lucides*," we commend especially to the attention of medico-legists. "We hear every day," writes Dr. Billod, "madmen have *lucid moments*, *lucid intervals*. What are we to understand by it? Is it exact? To what extent are there grounds for the saying? Let us acknowledge at once that we have in vain sought for an answer in the magistral works, and in all the authors who treat of mental alienation. * * * It would seem to follow from this that the phrase represents an accepted fact, since it has received the double consecration of time and of science. And yet in reality there is nothing in it, as we propose to demonstrate in a few words" (vol. i, p. 278).

Without captiousness, exception might be taken, even admitting the fact assumed, to the terms in vogue, for there cannot be both lucid moments and lucid intervals. What etymological juggling can justify the use of *lucid*, or *lucidity*, as a synonym of *reason* or *rational*. In point of fact, we constantly meet with persons of sound intellect lacking, to a lamentable extent, the faculty of expressing themselves clearly or lucidly, whilst it often happens that a lunatic exhibits remarkable lucidness while discovering his most unreasonable delusions. We will, however, accept for our present purpose the terms *lucid moments* or *intervals* in their current sense; that is, certain intervals during which the lunatic recovers for a period, more or less brief, the use of his reason,—in other words, moments, during which the lunatic ceases to be a lunatic. Let us see whether, in the various forms of acute and chronic insanity, any condition happens which will justify these terms.

The intellectual and emotional disturbances which characterize an attack of insanity are constantly paroxysmal. One third, probably, of the cases of mania are intermittent; the fits recurring at variable periods, with intervals of days, weeks, and months, and indeed several years. In melancholia we often have the same condition. Now, is it proper to term these intervals lucid, if by that term a return to mental soundness is meant? Strictly the word *lucid* can only refer to the intellectual faculties, and not to the state of the will or emotions; but evidently the sense in which it

is used by writers on insanity looks at the mind as a unit. Now, what close observer of the insane will assert that the mind, during these intermissions, taken as a unit, is whole? The late objective disturbances have, it is true, abated, or disappeared, but the mental state that succeeds is very far from perfectness. When Dr. Billod was in charge of the Asylum at Blois, he saw a large number of cases of intermittent mania, and he writes: "In not a single case was I able to ascertain during the intervals between the fits a perfectly regular mental condition (i, 281). There is always, in the most favorable cases, evidences of flaw or perversion of some of the faculties. If the intellect has seemingly regained its health, and no delusion can be detected, there is still disorder of the affective faculties remaining, as irritability, undue depression, moroseness, indisposition to talk, etc. In melancholia we have no better state of things. The melancholiac may conceal his delusions, he may cease talking about his having lost God's favor, or committed the unpardonable sin, but his physiognomy, his demeanor, his whole way of life, show that the snake is scotched, not killed, and at any moment "may close and be itself again." In our author's words, "the specific seal of insanity is stamped on the *moral* of these unfortunates." So that neither the absence of obtrusive vehemence in the one type, nor the passive yielding to reason, as shown in the abandonment or concealment of desponding fears and fancies, in the other, prove sound mind. Both are deceptive as to the real mental state; the recovery is apparent not actual; relative not full. There is suspension of manifestation, and nothing more.

These views, the present writer has held and taught for many years, in opposition to the current teaching of alienistic writers, and he has been in the habit of likening the so-called *lucid interval* to the intermissions in paludal fever, where the poison is yet in the system, and the patient is still suffering from numerous morbid symptoms, and speaks of his well days, as distinguished from those of his shivering and hot fits. In both there is not mere pathogenetic potentiality, but positive present activity of the morbid element. In law, a *lucid interval*, as defined by the highest legal authorities "consists not in a mere cessation of the violent symptoms of a disorder, but an interval in which the mind, having thrown off the disease, has recovered its general habit. The party must be capable of forming a sound judgment of what he is doing, and his state of mind such that any indifferent person would think him able to manage his own affairs" (Collinson, "On

Lunacy"). Our contention is that the mind of the lunatic, at these periods, does not recover its general habit. The error, and one often serious in its consequences, we conceive, in the above definition is, permitting the final judgment of the lunatic's mind to be determined by the observation of an "indifferent person." That madmen, even those affected with the most inveterate forms of mental derangement, are able to conceal their condition, even for a while, from skilful observers, is of constant occurrence; and they frequently do it from a motive as pertinent as any that would actuate one in the full possession of his reason. How easily, therefore, may the unskilful and indifferent individual be deceived, and as a matter of fact this is not of infrequent occurrence, to the great prejudice of the unfortunate lunatic, and his estate. There is abundant and convincing proof of the correctness of this assertion in the record of the findings of sheriffs' juries, and the harm it works is one of the strongest objections to some of the proposed modifications of the lunacy laws now before the Legislature of this State.

M. C.

40th annual report of the managers of the State Lunatic Asylum, Utica, N. Y., for the year 1882. The annual report of the Trustees and Superintendent of the New York State Lunatic Asylum is before us. It was presented to the Legislature some weeks since, but in advance of its publication as a legislative document, the principal portion appears in the columns of the *Utica Herald*.

It is written with the usual skill that marks the documents emanating from the same source in previous years, and both reports are evidently inspired by one mind, if not written by the same hand. They resemble each other as closely as sound and echo. There is the usual apology for expending more money than the annual income of the asylum, though such expenditure is an express violation of a State law.

We miss the customary defence of the use of restraining apparatus, though no statistics are given by which one can judge whether Utica is following the current of European professional sentiment in the matter. There is, however, an indirect reference to the old topic, in this fashion. A complimentary private letter to the Superintendent, from Dr. Anderson, of Rochester, late of the Board of State Charities, finds its way, most opportunely, into the report of the Trustees. In that, the writer, after mentioning that he had on

a former occasion "subjected Dr. Gray's mode of treatment and discipline to the closest scrutiny in his power," adds: "Regarding the use of the crib and the muff, I have reason to believe that your course is fully justified. I have made special inquiry on this point among experienced alienists in various parts of our country, and their testimony is in almost uniform accord with your general views and practice." It will be observed that Dr. Anderson's views upon the subject of restraint are based upon those of experienced American superintendents. These gentlemen doubtless then believed what they told him, for American superintendents very reluctantly yielded their opinions upon this point. They had not tried the British system of non-restraint, and their only organ, *The Journal of Insanity*, published at Utica, was continually asserting that the system was a failure in England. We are happy to assure Dr. Anderson, that probably most of the alienists whom he consulted are now not using one half the amount of restraint they were employing when he made the inquiries. Notably is this true in the State of New York, as he can convince himself if he will consult the present Commissioner of Lunacy, Dr. Stephen Smith. It may be added that patients, who when at the Utica asylum have habitually been confined in cribs or worn restraining apparatus, and then been dismissed as incurable to county asylums, have in their new homes been put to work, and the need for restraint has ceased.

During the last year there have been more than the usual occurrences, relating to this institution, to challenge an attitude of defence on the part of its managers and officials. Thus, several patients have been liberated by a judicial order in spite of the remonstrances of the medical officers. The Trustees refer to one of these by saying substantially that they had made full inquiry in the matter, and were satisfied that Mr. James B. Silkman had been insane and was still insane, and that they had placed their opinions on record in the minutes of their meeting. They seem to think that this settles the matter and ends the case. But the question before Judge Barnard was not alone whether Mr. Silkman was or was not technically insane, but whether so insane as to forfeit his liberty. On this subject it may be well to cite the opinions of the highest English court, as quoted by Dr. Bucknill, himself, of large experience in the management of the insane, as will be admitted even at Utica. Says Dr. Bucknill: "The one great argument in favor of facile confinement is that the speedy treatment of mental disease may thereby be provided. This idea so pervades these

expressions of opinion on this subject, that it appears to be assumed that the main and primary object of confinement is the treatment of disease. But, strange as it may, perchance, appear to many well-instructed medical men, this assumption has no legal foundation whatever. The purpose of the law, as expounded by the judges of the law without exception, looks not in the slightest degree to the treatment of disease as authorizing and justifying the confinement of an insane person. The sole purpose of the law is to provide for the safety of the public and the individual. Safety is the one sole object which the law of England recognizes as the aim and purpose of confining the insane. Where there is no danger there can be no legal justification of confinement; and, without doubt, any harmless and safe person, however insane, would be entitled to damage for confinement in an asylum; even if by such confinement he had received the greatest medical benefit in regard of his disease." After citing several cases that confirm this opinion, he goes on to say: "It will have been observed that Lord Chief-Justice Campbell and the judges who concurred with him declared that no person of unsound mind who was not dangerous could legally be either taken up as a lunatic or restrained of his liberty or confined. This declaration of the law, therefore, covers not only the taking, but the detaining and confining of insane persons; and therefore it would appear that, even if a person be originally taken up as a dangerous lunatic, if he should afterward become not dangerous, his further detention will be illegal."

The Trustees of the asylum refer to another incident in its history during the past year. One patient killed another, and it is doubtless true, as they remark, "that all the circumstances show that there has been no remissness of the attendant either in observation of the patients or care of them, and no blame attached." What brought discredit upon the institution, in connection with this incident, was the fact that the officers made no report of it to the Commissioner of Lunacy or the Board of State Charities, till a newspaper reporter published it nearly four months afterward. It is the secretive policy that pervades the asylum, that the public is dissatisfied with.

In echoing the Superintendent's deprecation of the public distrust felt toward insane-asylum management, the Managers make the following remark: "The officers of State asylums, whether managers or medical men, can have no possible interest in retaining the immediate charge of patients who have recovered, but every interest in their discharge as soon as their condition will warrant." This is undoubtedly true with reference to most

State asylums, but is this point well taken in regard to the Utica asylum? Have they no interest in retaining any patients beyond the period when they could safely be dismissed? As to the patients supported at county charge, probably not, and for the reason that these actually pay less than the cost of their maintenance. For some years, the cost of maintenance of the patients at Utica has been more than five dollars a week; and the price of board for county cases is only four dollars. Now how is this deficiency made up? The answer is, by the profits made out of the pay-patients. These pay from six to twenty-five dollars a week; on an average eight or nine dollars. In other words, the asylum speculates upon the misfortune of a certain class of its citizens—usually people in moderate circumstances—to meet the excess of cost of support of county cases, over the income from that source. There *is*, therefore, an inducement to retain a patient who pays liberally and is not much trouble, and to dismiss promptly a troublesome county case. We will not say that this is consciously done at Utica, but if the Managers will examine their registers, they will find that in some years the duration of residence of pay-patients exceeds that of county patients by over twenty per cent.

Bear in mind, that the period of safe dismissal will not, as a rule, be well-defined, but largely dependent upon the judgment of the medical officer in charge of the patient. His judgment, even when based upon long experience in the care of the insane, is not infallible. On the contrary, in the routine mode of visitation of patients, often existing in large asylums, it may degenerate into mere caprice.

The report of the Superintendent is written with his characteristic disingenuousness. An illustration or two will suffice on this point. After giving some general statistics, he thus proceeds: "A greater portion than in any previous year of the cases admitted belong under the head of chronic insanity. A table is given showing those who were insane a year or more before admission. It shows that a large proportion are practically chronic cases when admitted, and that the evil of delay is increasing.

"The percentage insane a year or more before admission is as follows:

" 1871—42.14	1877—33.33
1872—37.43	1878—29.97
1873—35.76	1879—35.58
1874—32.32	1880—38.73
1875—32.61	1881—47.14
1876—32.24	1882—47.61."

Then follows a table showing the greater proportion of recoveries in recent than in chronic cases :

"Of those admitted insane one year or over, the percentage of recoveries was but 12.34.

"Of those admitted insane less than a year, the percentage of recoveries was 44.06.

"Of those admitted insane less than six months, the percentage of recoveries was 46.01."

He then goes on to say : "These figures far more forcibly than words show the evils of delay in placing the insane under treatment, and I am forced to the conclusion, from experience and observation, that the unjust crusade against asylums is largely responsible for this wrong inflicted on the insane, and for the increase in the number of chronic insane, with the public and private burdens it imposes."

The statement made is, that during the last two years the percentage of chronic cases on admission has increased to over 47, while during the preceding ten years it was but 34. He then asserts, with great solemnity, that this increase is *largely the result of the unjust crusade against insane asylums.*

Now, when Dr. Gray made this last assertion he knew, or ought to have known, that it was not true. In other words, he knew that the reason for this increase of chronic insanity among the admissions was a simple and obvious one, for which the distrust of insane asylums was not responsible. Two years ago the Buffalo asylum was opened for patients, taking all the recent cases of insanity from a dozen or more western counties of the State. The Utica asylum had, therefore, room for more chronic cases. The very table given shows that the same thing occurred when the Hudson River Hospital was opened in 1871 ; for it will be observed that the percentage of chronic insanity in the years 1871 and 1872 were respectively 42.14 and 37.43. In fact, the increase of chronic insanity was still more marked then, for in the years 1869 and 1870 the percentage of chronic insane on admissions was less than 30.

The obvious cause of such increase was frankly told in the reports of the Utica asylum for the years 1872 and 1873.

So, too, the Managers of the Hudson River Hospital, in their report for the year 1879, discuss this topic at length, and show that with the increase in the number of hospitals "the small minority, representing cases of acute insanity, will be left to be divided among four large State hospitals."

But to put the matter beyond cavil, it will only be necessary to call attention to the following facts: Leaving out the counties of New York and Kings, which provide for their own insane, the population of the State, between the years 1870 and 1883, increased about 13 per cent., while the hospital accommodations for the insane during the same period have been enlarged to the extent of over 120 per cent. by the opening of three new asylums. So that the recent insane, then all sent to Utica, are now distributed in four hospitals. In the years 1869 and 1870, the number of recent insane admitted at Utica averaged 341. In 1882, the number of acute cases admitted was 212. It is therefore evident that either the Utica asylum got more than its share of acute cases, or else there was actually a greater readiness on the part of the public to commit patients to insane asylums than formerly.

It will thus be seen that there was no occasion to lug in any absurd and frivolous reasons for an increase of chronic insanity among the admissions at the Utica asylum, and the Managers of the institution, who adopt and enlarge upon the causes imputed by their Superintendent, ought to be ashamed of their ignorance or something worse.

Unquestionably, more or less insane persons are retained at home too long before being sent to a hospital; and it is equally true that "ignorance and credulity" are sometimes the cause of such detention, but the fact is not a new one. The reports of the Utica asylum have dwelt upon this for more than twenty years.

There is, in the usual argument upon this subject, a lurking fallacy which Dr. Gray fully understands, while the public do not. We may illustrate this point. There are, in general terms, two forms of insanity. The one begins in an insidious way. It is, at the outset, not recognized by the patient or his friends, and so the family physician is not consulted till it has actually reached a chronic stage, or in a positive structural change in the brain. For this class of persons, from the nature of the case, prompt resort to an asylum will not be had, no matter how accessible it may be, nor how much confidence may be felt in its management. The other manifests itself by a sudden change in the character and habits of the individual,—a violent outbreak, perhaps,—that unavoidably awakens attention, and suggests or forces a prompt committal to an asylum, even when remote, or of dubious administration. Following the law of disease generally, the former will always be an intractable malady, if not absolutely incurable, while on the other hand the latter is quite amenable to treatment. The

whole history of the treatment of the insane proves this, and it is now generally recognized by alienists the world over. The old sanguine estimates of the curability of insanity have been abandoned by the profession. Dr. Earle, one of the oldest of American superintendents, after years of study of lunacy statistics, expresses a doubt whether more than 40 per cent. of the insane permanently recover, *even when treated at the outset of their disease*. He also says: "That wherever and whenever light is permitted to break in upon the darkness of the statistics, in gross, of the institutions for the insane, the revelation comes forth that a large proportion of the recoveries—and the older the institution, the larger is the proportion—are merely the expressions of *intermissions in the disease* of a comparatively few persons who pass their lives in oscillating between their homes and the hospitals."

Unfortunately, moreover, the type of our present civilization is such that the insidious form of the disease is relatively an increasing one. In spite of improved methods of treatment, the ratio of recoveries to admissions is a diminishing one, and more and more, patients drift into chronic insanity.

Following the report of the Superintendent a little farther, we find the following statements:

"Bearing in mind what has already been said, that the tendency to delay has recently been growing instead of decreasing, for the tables show that of those admitted the past two years the percentage of chronic insane has risen from an average of 34.08 to over 47, the outlook for the insane and for those upon whom their support will fall is not encouraging." He then adds that the increase of insanity in the State is not great, except as the result of neglect to treat the disease promptly, as other diseases are treated. After which follows this paragraph: "Among the reasons which are prominent in inducing this neglect, are first, the deductions drawn by certain writers as to the curability or incurability of the disease; and second, the disparagement of asylums and the recommendations of inexperienced physicians of home treatment instead of early resort to hospitals. This second reason is more intangible, and more insidiously dangerous. It lulls the friends of the insane to a false repose on the one hand, by assuring them that home treatment is equally if not more successful than hospital treatment; and on the other hand it disparages hospitals by insinuations and detractions put forth too often by those without the slightest knowledge of what an asylum is." It is then charged that these assailants, who doubt the easy curability of insanity, and

who have suggested home treatment for a portion of the insane, are often malignant medical men, ignorant or disappointed, pretended specialists in nervous diseases, etc., etc.; in short, very disagreeable and troublesome fellows.

Now, as the writers, whose deductions he deprecates, happen to be experienced superintendents of insane hospitals, abundantly able to defend their opinions, and as he does not indicate precisely how those deductions operate in the production of chronic insanity, it will not be necessary to discuss that point. The other deserves some attention. It will be observed that the complaint is, that it is *inexperienced physicians* who recommend home treatment for the insane. Among American physicians, the only one whom we recall as on record in this matter, is Dr. Hammond, who read a paper before the New York State Medical Society advocating home treatment in a certain class of cases. He can hardly be called an inexperienced physician.

In England, however, it is a different matter, as will be seen by the subjoined extracts from a work by Dr. Bucknill, published in 1880. Over there, the opinions objected to by Dr. Gray seem to have been held by very respectable authorities.

Thus, Dr. Maudsley says, referring to the objection that the lunatic might be better treated in an asylum than at home :

"The quarter from which this objection is urged taints it with suspicion ; I never heard it put forward but by those who are interested in the continuance of the present state of things—those who make it, appear to fail entirely to appreciate the strength of the passion for liberty which there is in the human breast ; and as I feel most earnestly that I should infinitely prefer a garret or a cellar for lodgings, with bread and water only for food, than to be clothed in purple and fine linen, and to fare sumptuously every day as a prisoner, I can well believe that all the comforts which the insane person has in his captivity are a miserable compensation for his entire loss of liberty,—that they are petty things which weigh not at all against the mighty suffering of a life-long imprisonment. I would put it to those who lay stress on the comforts of asylums, whether they sufficiently consider the discomforts of them, apart from the imprisonment which they are by the nature of the case. Is it not a common thing to hear from an insane person bitter complaints of the associations which he has in the asylum, and of the scenes of which he is an unwilling witness—scenes which cannot fail to occur, notwithstanding the best classification, when all sorts and conditions of madness are congre-

gated together? What can be conceived more affecting to a man who has any intelligence and sensibility left, than the vulgar tyranny of an ignorant attendant—a tyranny which the best management cannot altogether prevent in a large asylum? And I might go on to enumerate many more of the unpreventable miseries of life in an asylum, which, when superintendent of one, forced themselves painfully upon my attention, and often made me sick at heart.”

Dr. Bucknill is equally pronounced in his opinion. Thus he writes :

“But it is not merely the happy change which takes place in confirmed lunatics when they are judiciously removed from the dreary detention of the asylum into domestic life, it is the efficiency of the domestic treatment of lunacy during the whole course of the disease which constitutes its greatest value, and of this the author’s fullest and latest experience has convinced him that the curative influences of asylums have been vastly overrated, and that those of isolated treatment in domestic care have been greatly undervalued. It has long been the accepted doctrine that insanity can only be treated curatively in asylums. But it must not be forgotten that most of the works on the treatment of insanity have been written by medical men connected with asylums, who, without insincerity, might express opinions founded upon their own limited knowledge. A wider knowledge of insanity as it occurs among the upper and middle classes would have taught them that a very considerable number of cases of actual insanity run a short course and recover in domestic life with no great amount of treatment, and that not perhaps of a very scientific kind. As it is, the family doctor often treats and cures a case of lunacy almost without knowing it. Without paying that attention to the mental condition which he ought to do, he treats the failure of bodily health upon which it depends, and the patient frequently recovers in mind and body. In other cases, which are destined not to be transitory, the family doctor of necessity has to treat, and to treat at home, the disease in its most important phase—that of initiation and incubation. How little do the physicians of asylums know of the earliest stages of mental disease; and yet it is frequently in those stages alone that the disease is curable. But it is in these stages that the general physician or the family doctor does treat the developing disease—treats it at home and cures it. He treats the young maid with her green and yellow melancholy; or the

youth, pale, irritable, and recluse, with averted eyes which speak of evil habits ; or the desponding man with bile-poisoned blood ; or the woman in her autumn days, for the first time losing her cheerfulness ; and many other varieties of ailment becoming insanity ; and the number of such cases which are cured under ordinary medical treatment bears no mean proportion to those which pass into the asylum and may be cured or confirmed according to the accidents of care, skill, and good fortune which no one can foresee or estimate. Some physician, with the garnered wisdom of many years, is not unfrequently able to say of a patient in whom mental changes have only been incidentally remarked as accompanying ill health : ‘ This is a case which is likely to become insanity. I must not call it the fully developed disease, for there are no facts on which I could sign a certificate.’ Nor will he wait until the disease is mature before he commences treatment—under great difficulties perhaps, for no control can be imposed at this stage ; and yet the results of treatment are far more frequently successful than could by any means have been anticipated.”

There is one portion of Dr. Gray’s report to which we refer with great reluctance. We think that no one, who knows him well, would expect him to exhibit any special delicacy of feeling, but the outrageous use that he makes of a domestic tragedy in the household of a professional brother, shows such a lack of gentlemanly instinct, that it must have tinged the cheeks of his professional intimates. In a canting prelude he says : “ On any other ground than a due regard to the public welfare and the discharge of duties incident to official position it might seem painfully invidious to make any allusion to such an event as the recent shocking tragedy in New York,” etc., etc.

He then goes on to make it perfectly obvious, that this pretended sense of duty was a mere cloak for the concealment of an act of petty malice. For he then refers to his own table of admissions during the past year, representing a multitude of suicidal and homicidal cases, so that there was absolutely no occasion to select an individual case, as the foundation of his argument.

His own personal experience should have given him a lesson in professional decency. For when he was stricken by the hand of an insane, would-be homicide, his professional brethren, without regard to any prior differences of opinion, extended to himself and family the warmest sympathy.

Our space will not allow us to dwell longer upon this annual report of the Utica asylum. We have referred to a few salient points. The remainder is equally disingenuous and misleading.

In conclusion, we would suggest to the Managers of that institution an inquiry of this sort. They desire to obtain and hold the confidence of the community. To this end, in their dealings with the public in all its relations, should they not place more reliance upon a frank and straightforward conduct on the part of all the officials, than upon the mere administrative finesse of their Superintendent?

Medical electricity. By ROBERTS BARTHLOW, A.M., M.D., LL.D. Philadelphia: Henry C. Lea's Son & Co., 1882.

The appearance of a second edition of this practical work on electro-therapeutics reminds us that we yet owe an unexpressed debt of thanks both to author and publisher for their creditable performance.

We welcome, in the first place, a work that is based upon the laws of electro-physics, rather than those of electro-metaphysics. The medical profession has been too long misled by visionary and verbose treatises on electricity, whose pages might as well, so far as science is concerned, have been plucked from the pages of the veriest charlatans. Such works may be classed among the "dime novels" of scientific literature.

It has often been remarked that electro-therapeutics has suffered much from having fallen into the hands of peripatetic quacks. Again, it has suffered much from the superstitious ignorance of the community, who persist in confounding the electric with the vital principle; but it may be asked with a fair expectation of an affirmative answer, whether the semi-authoritative works of incompetent men in our own ranks have not after all inflicted more damage in the minds of the sober practitioner, than either vulgar ignorance or known quackery. In these works electricity has been held up as the great cure-all, the methods of administration have been blundering, the results of treatment confused and badly observed.

If we except from our American medical literature on this subject the work of Meyer, translated from the German by Dr. Hammond, and a few others, all the rest may be condemned in general terms.

It is above this visionary muddle of quasi-science that Dr. Bartholow's work elevates us, and leads us to hope that justice may yet be rendered to the curative power of electricity in medicine.

In glancing over the volume we recognize many familiar illustrations, and find an equally familiar text describing them. This is, of course, to be expected in a systematic treatise upon electrophysics and electro-therapeutics. But we note also an additional fact, that lends a keen zest to the perusal of the work, and this is, that Dr. Bartholow has not failed to introduce in their appropriate places most of the new facts and applications of electricity to medicine that have been brought forward in recent years. In short, the book is fully up to the times. For instance, a chapter is given to magneto-therapy, and this subject, lately revived, is fully and impartially treated. Due credit is given to our own countryman, Dr. John Vansant, who, in his paper "On the Physiological Action of Magnetism," published in the *Journal of Psychological Medicine*, New York, 1870, details the results of his studies upon the influence of magnets not only on animal but also on vegetable life. A brief résumé of these results, interesting both from a practical point of view and from the fact that they have been unnoticed by others retraversing the same ground, is given in our editorial columns.

Static electricity, its methods and uses, receives very full treatment. This we should expect, not only from the large amount of attention lately given to this branch of electro-therapeutics, nor from the excellent results credited to its employment, but also from the special study which the author himself has given to it. The efficacy of statical electricity in the treatment of disease does not lack the corroborative testimony of brilliant names and reputations. Revived by Dr. Golding Bird, in England, about 1830, its curative effects were accepted as conclusive by the conservative staff of physicians at Guy's Hospital. Dr. Addison of this staff reported many noteworthy cures effected by its use. Another member of the staff, Sir William Gull, was convinced of the superior curative efficacy of static to faradic electricity, (galvanism had not at that time come into general employment,) and Dr. Wilks, of the same staff, felt confident that the new method of galvanization and faradization had not yet superseded the treatment by the statical electrization. The modern revival by Prof. Charcot of the medical use of statical electricity is well known, likewise the important share in this revival to be credited to his pupil, Dr. Vigouroux, who early and late has followed up every detail of the work in the most scientific manner. In our own country the first formal publication and introduction of the modern views upon the subject were made by Dr. William J. Morton, of New York, in a

paper read before the New York Academy of Medicine, March 3, 1881; Dr. Morton pointing out at the same time the existence of a new current, obtainable from the static machine, and in many respects resembling the ordinary faradic current, though in many respects also preferable to it.

Curiously, Dr. Bartholow, who seems to have taken a quick interest in the administration of the revived form of electrization, had hit upon a similar current, and had embodied a description of it in the work now under observation, and published but a short time after Dr. Morton's publication. This fact Dr. Bartholow generously alludes to in a foot-note to his preface. Next in order, Drs. Hammond, Beard, and Rockwell carefully followed up the new facts. Dr. Knight recalled a continued experience with feeble administrations, and took up the subject with renewed ardor, and to-day the statical electrical machines in this country in active use may be counted by hundreds; and already the key-note of the proper direction of study in this direction has been struck in discussions upon the differential indications for the use of dynamic and statical electrization. If the revival of statical electricity has done nothing else, it has at least secured a fresh hearing to the undeniable claims of electricity, rightly managed, to be considered as one of the indispensable means of cure at the command of the modern physician, particularly in a large class of subacute and chronic affections. And seldom have these claims been more practically and more agreeably placed before the practitioner than in Dr. Bartholow's work.

We should have been glad to see more than two or three lines given to the surprising therapeutical results obtained by the application of metals,—not that we by any means believe that the results in question are due to any inherent medical qualities the metals possess beyond that possessed by magnetic influence, or by weak electric currents, but we think that the author is scarcely correct when he refers to the "meagreness of the information" on this subject as a reason for not treating it more fully.

For besides the inaugural thesis of M. Burq, published in 1851, and his subsequent papers, there exist the important report of the commission appointed by the Société de Biologie in 1876, and consisting of MM. Charcot, Luys, and Dumontpallier; and numerous observations by Vigouroux, Oulmont, Landolt, Debove, Bourneville, and Regnard in France, Seppili, Maragliani, and Maggiorani in Italy, Müller, Rosenthal, Schiff, Adler, Rumpf, and Miers in Germany, MacCall Anderson and others in England, and by Hammond in America.

We welcome as an important feature in Dr. Bartholow's work, the full treatment given to the question of electro-diagnosis. The remarkable qualitative changes classified by Erb under the general term "*Entartungsreaction*," or "reaction of degeneration," should, however, be more fully treated of. Their full comprehension is essential to both a rational treatment and a prognosis. Dr. Bartholow does not, however, neglect this branch of the subject entirely, but states sufficient to serve as an elementary working basis.

The book is conveniently divided into : Part I, on electro-physics ; II, on electro-physiology ; III, on electro-diagnosis ; IV, on electro-therapeutics ; V, on electricity in surgery ; and VI, on thermo-electricity. These subjects are treated of in 286 pages ; the type is good, the illustrations of average quality, and there is everywhere to be observed the characteristic book-making genius of the author.

We may safely say that there is to-day no book on this subject in the English language more trustworthy than this one. While not encyclopædic, it yet contains all that the general practitioner, or, indeed, the expert, will ever put into practice.

The medical profession was in want of just such a treatise, and the need is now adequately supplied. W. J. M.

Two hard cases. By W. W. GODDING, M.D., Superintendent of the Government Asylum at Washington, D. C. Boston : Houghton, Mifflin, & Co., 1882.

The present volume is published for the very frankly avowed and original reason that the author "had observed, during the examination of the medical expert witnesses at the Guiteau trial, that one must be very low down in the scale not to have at least written a book or been elected an honorary member of some foreign medical society." This sly sarcasm at some of the government experts fittingly introduces a vein of sarcasm which runs through the whole book. The Two Hard Cases, who are the heroes of the volume, are a patient of the Taunton Asylum, and Guiteau. The first patient was admitted to the asylum in consequence of an attempted murder, the attempt being made through jealousy. The history of the case is clearly written, but, it must be confessed, somewhat meagre. The psychical manifestations of the patient almost wholly related to minor and major immoralities. The motives for these immoralities were never clear. Wild escapes from the asylum and as

purposeless returns diversified his asylum life. He was at one time placed on a very extended parole, and kept it faithfully. Then it was broken suddenly, and without obvious cause. After a brief sojourn away from the asylum, he promised Dr. Godding to return, and did so. He kept his word, and hung himself the first night after his arrival. The patient was but eighteen, and the case, as far as the meagre history affords the grounds for opinion, was evidently one of the primary monomania of the Germans. It was marked by the erratic characteristics of these patients in early puberty. Dr. Godding's kindness of heart and great patience and forbearance are well illustrated in the history of the case.

The portion of the book devoted to Guiteau is written in a style which fascinates and enchains the reader in the perusal of what is a more than a twice-told tale. It is an open secret that Dr. Godding was the first alienist consulted with regard to Guiteau, and it was his scientific opinion that set District-Attorney Corkhill searching far and wide for medical assistance. The latter has stated that had Dr. Gray pronounced Guiteau insane, he would never have been brought to trial; but it is well known that no experts were selected by the government except such as would believe Guiteau sane under any and all circumstances. The encomiums passed by Dr. Godding on Judge Cox are judicious and, in the main, well deserved; yet even here the pleasant sarcasm of Dr. Godding creeps out. The statement made by this judge, early in the trial, that the would-be assassin of Jackson was gagged, and that Guiteau would be if he were not quiet, is scarcely consistent with his alleged knowledge of forensic medicine,—for the statement was demonstrably false about Lawrence. If his knowledge was so limited about the legal aspects of that Washington *cas célèbre*, his knowledge of its medical aspects must have been equally deficient. It is best, however, to discuss in detail the aspects of the trial as described by Dr. Godding. "To-day," says Dr. Godding, "the impartial trial by jury, that was wrested from the trembling hands of the English tyrant by the stern barons at Runnymede, stands between the humblest citizen and all wrong. Why? simply because it is impartial." No citizen who is clear-headed but, in ordinary matters where he is legally right, would prefer to have a judge pass on the question rather than an ignorant, prejudiced, and "impartial" jury; and in this age he who reads cannot be impartial, and he who does not read is not intelligent. To try any question of a scientific nature before an ordinary jury, results in absurdity,—and

this is especially the case in trials to determine insanity. Certain states have laws requiring such trials, and what is the result? An insane man is allowed to depart; his delusions are regarded as harmless eccentricities, and he, as in a recent case in Illinois, kills his wife and himself in consequence of these harmless eccentricities. In criminal matters, a jury system has acted still worse. In a trial in Philadelphia the insanity of the man was so evident that the district-attorney prosecuting was afraid that so dangerous a lunatic would be turned loose on the community by a disagreement, and so stated. The judge charged in accordance, but the jury was with difficulty induced to render a verdict of insanity. After the trial, it was found that only three of these impartial jurors had any doubts of the man's sanity, the rest being convinced that he was sane. There is no credit to the nation in the fact that it, like England, has executed a lunatic under its absurd legal forms. In his analysis of the testimony of the experts, he animadverts, and with justice, on a lapsus made by myself; a lapsus which was so regarded by a number of impartial persons.

Concerning Scoville's hypothetical case, he very appropriately says, this appeared to be too near a truism to carry much weight with the jury, and was a self-evident proposition, "although," he says, "I am aware that Drs. Worcester and Strong were staggered by it. And the distinguished leader of the government experts, Dr. Gray, after bringing all his erudition to bear on it, did not feel equal to answering the question, although the objection he urged to it might impress an unbiassed observer as hypercritical. It is a mistake to confound conceit of opinion with strength of mind, but some men are so constituted that they cannot help it." He, however, makes the error of confounding Dr. Beard's objection with those of Dr. Gray. Dr. Beard objected to the hypothetical case when he had examined the prisoner, and could answer with more certainty from the hypothetical case of the prosecution. As has been shown by Dr. Hammond (*JOURNAL OF NERVOUS AND MENTAL DISEASE*, January, 1882), this was a good history of Guiteau's life, and upon it no honest expert could fail to pronounce Guiteau insane. Dr. Godding says, that Dr. Spitzka's evidence was in many respects correct, and that Guiteau's insanity was in part congenital. He cites from Dr. Gray's evidence the latter's absurd classification: "Mania, acute, subacute, paroxysmal and chronic melancholia of all grades, and dementia, epilepsy with mania or dementia, general paresis, delirium tremens, and imbecility, which embraced all possible manifestations of insanity." Also his de-

nial of the existence of moral insanity, culminating in the statement, that "no physical sickness could reflect itself through a man's moral nature only." He further cites Gray as denying that insanity as a disease was inherited, and other of the government experts as saying that *no* disease was inherited. He says, commenting on this, "I could not help asking myself wherein is this new enumeration of 'all the possible manifestations,' with its convenient eliminations, to be preferred to the old? It is Gray now, but it was Ray then; and I wondered, if that intellectual giant could come back from the shore where he has lately gone to sleep, if we should not hear some such vigorous language as this: 'You cannot get rid of a fact by denying its existence.' That is the difficulty with Dr. Gray's insanity. He simplifies our psychological studies wonderfully, but what are we to do with those 'minds diseased,' which his classification leaves out to shift for themselves. We must still keep the bounds of insanity essentially where they are, or, if we narrow them, with Dr. Gray, we must set up another kingdom in disease and call it unsoundness of mind." Dr. Godding says, that he dislikes to hear dipsomania used synonymously with drunkenness, but he has no doubt that insanity may manifest itself by dipsomania, or kleptomania only. He claims, in effect, that Dr. Gray begs the question. He further remarks about the absurd statements respecting heredity: "And now, after all these years of careful research, and our asylum reports rendered bulky with long tables, prepared with so much care, involving inquiry for the origin of the disease, not only in the direct line, but also in the collateral branches, just when the medical profession has accepted as a well-established fact the hereditary nature of insanity, we are met with the withering conundrum, 'Can a man inherit insanity from his uncle?' and are told that there is no such thing as hereditary insanity. Ah! how is it that science shows that syphilis, small-pox, and tubercle are born in the offspring; that the infant comes into the world with spina bifida, idiotic, hydrocephalic, acephalic; that the child is blind, mute, misshapen in the womb, but never insane. Because, forsooth, we have seen fit to limit insanity to disease of the brain, and the disease is not inherited! Is it possible that in all these years it has not been the doctor's lot, as it has been mine, to be consulted about those queer children of insane parentage who are perverse from the start. Will he say that the perverseness is only badness, which should be whipped out of the child. But that has generally been tried before the physician is consulted. Heterodox, I know it is,

but observed facts compel me to be heterodox with Prichard, Esquirol, Ray, Morel, Griesinger, and Maudsley, and I know not how many others, in recognizing a condition inherent, born in the individual, and not a result of education." In like manner and with equal courtesy does Dr. Godding lay bare the sophistries of Dr. Gray. He does not however allude to the fact that Dr. Gray was forced to admit that from his homicidal tables he had excluded all cases resembling Guiteau. Dr. Godding's indictment does not include this, but it is none the less effective and worthy the man who, with Ray and Wallace, protested against that vile personal attack, "True and False Experts," to the teeth of Gray and his sycophants. Despite some little pique exhibited against some experts for the defence, this book will do much good, written, as it is, for popular reading. It shows that the earlier American superintendents were fully abreast of any alienists, and that their views were in full accord with those of the best authorities at present. The Asylum Association has fallen into decadence through the supremacy of dilettante politicians of the meanest stamp. The book is issued in the "Little Classic" style of its publishers, and is worthy perusal, both from its style and its scientific interest.

J. G. K.

Traité de la pellagre d'après des observations recueillies en Italie et en France, suivé d'une enquête dans les asiles d'aliénés. Par le Dr. E. BILLOD. Paris: Victor Masson et Fils, 1870.

Pellagra has attracted but little attention from American dermatologists and neurologists, chiefly because of the fact that both the disease and its best-established cause have been wanting in the United States. At present, however, there is a relatively large influx of Italians, and occasional cases may therefore appear to puzzle American alienists. What is pellagra? is a question that may be fairly asked at the outset of this review. According to Bouchard, who is approvingly quoted by Dr. Billod, "pellagra is a chronic constitutional affection with vernal exacerbations, characterized more particularly by very varied disorders of the digestive apparatus and cerebro-spinal axis, and leading, under the influence of insolation, to erythema, limited entirely to the parts affected by the solar rays."

As Dr. Billod himself expresses it: "Pellagra is an affection peculiarly characterized by erythema, coming on generally in the spring-time, produced by insolation, and limited entirely to the

parts affected by the same, frequently accompanied by varied affections of the digestive apparatus and of the nervous system, with which latter it may alternate. It is almost always due to a constitutional condition of a cachectic nature."

Duhring ("Diseases of the Skin") says it is an endemic constitutional disease, characterized by a chronic dermic inflammation of an erythematous nature, confined to the skin exposed to the sun, accompanied by digestive and neurotic derangement.

There are, therefore, three essential features to constitute pellagra: a dermatosis, an affection of the alimentary canal, and a neurosis.

The affection is usually regarded as the result of an ingestion of diseased maize. Lombrozo is of opinion that this doctrine, first advanced by Thouvenel in 1798, has a foundation in fact. Lombrozo regards as the active agent in producing pellagra, a principle of diseased maize, called *pellagrozeine*.

This opinion is not entirely accepted by Dr. Billod. He claims that pellagra arises from cachexias, and that misery, paludinal influences, insanity, and ingestion of spoiled maize may all give rise to pellagra. The affection has, he claims, been found by him among lunatics not subjected to a maize diet. Examining his cases carefully, there are not always found the characteristic phenomena of pellagra, and many of the symptoms described are merely accidental concomitants of the insanity, and in other cases the patients had partaken of diseased maize. The erythema described as pellagra is not characteristic, since many persons are liable to an analogous affection from over-heating. The question of the trophic origin of the eruption has not attracted Dr. Billod's attention.

Ergot produces marked nervous symptoms, and there is no essential reason why an analogous product from maize should not have allied effects on the nervous system. Despite the bulky nature of the present volume, its numerous researches, and the apparent careful diagnosis of its author, he has not clearly shown that pellagra can arise independently of the ingestion of diseased maize. He has not held apart accidental complications of insanity, whether of a trophic nature or otherwise, and has consequently vitiated the data upon which he relies for demonstration of the existence of a pellagrous tendency among the insane who do not eat maize. Carefully sifted, the work is of value and interest, although it does not prove what the author claims for it.

J. G. K.

Die allgemeine Elektrisation des menschlichen Körpers. Von Dr. THEOD. STEIN, Frankfort-a-M. Halle a. S. Knapp, 1882. *The general electrization of the body in the treatment of certain nervous diseases.*

Dr. Theod. Stein, of Frankfort, publishes a pamphlet upon the above subject. It is in part historical and technical. No especially new facts are given, but the value of carefully and frequently applied general electrization (faradic, static, and galvanic) in general neuropathies is strongly recommended. Statistics are given of the results of treating twenty-three cases with static electricity. Of these, twelve were "cured" and two improved. Among the former were two cases of chorea, one of "Kopfdruck," one of tremor, one of sciatica, one of tic douloureux. Six cases of neurasthenia were not improved, and the author thinks that the static electrical "bath" is of no value in neurasthenia. The author, however, seems to have had a smaller apparatus than is used in New York. [C. L. D.]

On concussion of the spine, nervous shock, and other obscure injuries of the nervous system in their clinical and medico-legal aspects. By JOHN ERIC ERICHSEN, F.R.S., Surgeon-Extraordinary to the Queen, etc., etc., etc. A new and revised edition. New York: William Wood & Co., 1882, 12mo, pp. 344.

This book, critically reviewed in this JOURNAL, July, 1876, is an enlargement and revision of Mr. Erichsen's work, published in 1875, which has been left substantially unchanged, a few additions to the text having been made, and some corrections.

We do not propose at this time to discuss the true value of this volume, which is interesting and, in some parts, instructive, but we cannot help regretting that it has, unhappily, been too often strained from its plain and proper purpose to give form and substance to a "special form" of neuromimetic disorders so common of late years, and known as "railway concussion," and which is not seldom begot of fancy and fraud—rotten cases abiding no handling.

M. C.

Obituary.

GEORGE MILLER BEARD, A.M., M.D., NEW YORK.

THE death of Dr. George Miller Beard was a surprise to all, and cannot fail to carry with it a sense of genuine sorrow to those who had the privilege of knowing him well. To the entire medical profession also his demise will cause a pang of keen regret. Both as neurologist and psychiatrist, Dr. Beard had already, at the time of his death, attained a high rank. His reputation, like his broad modes of thought, was cosmopolitan. His literary activity developed in two directions not often combined in the same person. He was both a popularizer of scientific knowledge and an original investigator. As popularizer, he wrote both for the medical and the lay public, and his writings found among both a large circle of readers. His style was logical, vivid, original, and always interesting. In this phase of his course he found many followers and few critics.

As an original investigator, his methods of study and of presenting his views were peculiarly his own, and by reason of their very originality they sometimes provoked a hostile criticism which, indeed, often proved to be the highest compliment that could be paid them. In this latter phase of literary activity he found few followers among those pursuing the ordinary scientific methods, and many critics. The reason of this lies in the nature of the subjects toward which he turned his attention. Naturally of a philosophical turn of mind, he pursued the study of hypnotism, clairvoyance, mind-reading, and certain allied topics. He was not a believer in the inductive philosophy pure and simple, but held rather that the highest human knowledge

was to be obtained by the deductive process. Following thus in his investigation a line of subjects where negation is simple, and often but a sign of ignorance, while demonstration and affirmation, in the nature of things, was infrequent and difficult of attainment, he laid himself open to criticism, born of the uncertainties of the ground over which he travelled. But this all will admit, that no man ever met criticism, whether in society, discussions, or in print, with greater good-humor. No opposition disturbed his perfect belief in the correctness of his own position; no captious remark ruffled his placidity. Indeed, in all his writings, in his conversation, and in his experiments, there was a kind of philosophical serenity that commanded respect and attracted men to him.

Dr. Beard was born in Montville, Conn., on May 8, 1839, was graduated from Yale College in 1862, and in 1866 from the College of Physicians and Surgeons in New York. He at once began the practice of medicine in this city, making electro-therapeutics and nervous diseases a specialty. His first contribution to medical literature was a paper in 1866 upon "Electricity as a Tonic," and from that time forth he proved to be an indefatigable, earnest, and voluminous writer. The work by which he is most widely known to physicians is probably that upon "Medical and Surgical Electricity," published in 1875, in conjunction with Dr. A. D. Rockwell. Two methods of electrization were described in this work, to which were applied respectively the terms "central galvanization" and "general faradization," expressing in a terse and systematized manner what undoubtedly had been frequently practised but not specifically named. These terms, doubtless, will cling for a long time to the literature of medical electricity. The publication of this work gave a decided and scientific impetus to the electro-therapeutics of the day.

To the public Dr. Beard had early become known by his "Our Home Physician," published in 1869, and "Eating and Drinking" and "Stimulants and Narcotics," published in 1871.

Among his other contributions to medical literature may be

mentioned: "The Legal Responsibility in Old Age, Based on the Author's Researches into the Relations of Age to Work"; "Hay Fever, or Summer Catarrh"; "The Scientific Basis of Delusions, Being a New Theory of Trance and its Bearing on Human Testimony"; "Nervous Exhaustion"; "Sea-Sickness: its Symptoms, Nature and Treatment"; "American Nervousness, with its Causes and Consequences"; "Trance and Muscle-Reading"; "Psychology of the Salem Witchcraft Excitement of 1692, and its Practical Applications to Events of our own Time, Including the Cases of Guiteau and of Cadet Whittaker"; "Medical Education and the Medical Profession in Europe and America." His more important works have been translated into German, and have had a large circulation in different parts of Germany. Among the German writers who have contributed to the literature of general electrization, neurasthenia, and nervousness, endorsing and extending his views, are Benedict, Erb, Lowenfeld, Möbius, Engelhorn, Fischer, C. Gerhardt, Vater, Neisser, Leyden, Holst, Arndt, Burkart, Maienfisch, and Stein. Indeed, Dr. Beard himself was of opinion that his writings and researches had more influence in Germany than in any other country. He referred with pride to the part that he had taken in the growth of a new philosophy and literature of the nervous system.

He was also a frequent contributor to the *North American Review*, the *Popular Science Monthly* and the daily press. The simple enumeration of his various pamphlets and articles would make a long and creditable list, indicative of the industry of the man, of his versatility, and of his quick grasp of the latest phase of popular thought concerning this or that scientific subject. Dr. Beard was not the anchorite-savant buried in the contemplation of the field of a microscope, or intent on the gross pathology of a part. His intellect was of a more subtle type, and delighted in analyzing the mysteries of the human mind; nor in this was he a mere metaphysician, dallying with words; on the contrary, he brought to the task a wide range of physical tests. However, on the whole he seems to have been glad to let others make special

studies so long as he could be allowed to generalize on the basis of collected observations. His works relating to nervous exhaustion or neurasthenia are remarkable for the power of observation which they display, and for the logical manner in which these observations are brought forward to sustain his positions.

To Dr. Beard belongs the credit of demonstrating that the so-called mind-reading was in reality muscle-reading. He was, we believe, the first in this country to repeat the experiments of Hitzig and Ferrier on cerebral localization, and demonstrated them before the New York Society of Neurology and Electrology.

In his work on "A New Theory of Trance," published in 1877, taking up the subject where it was left by Braid and Czermak, he claims to have demonstrated these three points: First, that in order to introduce artificial or mesmeric trance (hypnotism), it was not needful to go through any passes, or fixing of the senses, or employ any special manœuvrings whatsoever. Second, that this mesmeric trance (hypnotism) is but an artificial production of a state which is common to the race, as insanity is common to the race. Third, if we understand any one of the varieties of trance, we understand them all; for one law presides over all.

Much credit must also be given to Dr. Beard for systematizing the use of the bromides in sea-sickness, and bringing this very efficient treatment into general notice.

Among many other societies, Dr. Beard was a member of the American Neurological Association, of the National Association for the Protection of the Insane, and was one of the founders of the New York Society of Neurology and Electrology, subsequently merged into the New York Neurological Society.

He was a contributor to the pages of this JOURNAL. His last article, entitled "The Case of Guiteau: a Psychological Study," and published in our number of January, 1882, attracted much attention both at home and abroad, and was extensively quoted and referred to in the final summing up of Guiteau's case by European alienists.

He held that Guiteau was insane, and had been so for at least

twenty years. In referring back to this article, the reader will find in it pages written in Dr. Beard's best and most characteristic style, at once subtle, logical, concise, and well put.

But no further enumeration of Dr. Beard's public merits is needed ; his work will long speak for itself.

His death was characteristic of the man. He was perfectly conscious that he was dying. Referring to a reception that was to have been given to him at Montreal, he said: "Instead of seeing me, they will read of my death in the newspapers."

To the doctors who were sent for in haste a few hours before his last moments, he said in words that all who know him will recognize as familiar: "You 're good fellows, but it 's no use doing any thing for me. My time has come."

And even while dying he was analyzing his sensations, and remarked: "Tell the doctors it is impossible for me to record the thoughts of a dying man. It would be interesting to do so, but I cannot. My time has come. I hope others will carry on my work."

He who had made a psychical analysis of many other minds recognized the peculiar state of his own, but could not summon the force to record the observations. The scientific spirit of investigation was strong in him even at the end ; he wished to record his thoughts for the benefit of others. Yes, his time had come. The small band of neurologists has lost a friend and earnest co-worker ; the world a man who, whatever his place may be in the final temple of fame, at least tried to do the world good, and certainly has had some share in the advance of a true understanding of psychological medicine.

"Vita enim mortuorum in memoria vivorum est posita."

[W. J. M.]

Editorial Department.

LOCALIZATIONISTS AND INHIBITIONISTS.

PROF. CHARCOT'S and Dr. Richer's joint contribution to the present issue of the JOURNAL brings into prominence the large amount of original work now directed by several other eminent European observers toward solving the uncertainties presented by the phenomena of hypnotism. Charcot's initiative but very complete observations were ably supplemented by the extended labors of Richer and by Bourneville.

Not long after appeared the excellent little treatise by Heidenhain, and now Brown-Séquard has entered the lists and would explain the phenomena on the principle of inhibition and dynamogeny.¹

In our own country the production of the phenomena and many of the confirmatory experiments have been publicly repeated by Hammond, Beard, Morton and Gray; while in England, the country of Braid, who, unrecognized, uncorroborated, and scoffed at, was nevertheless the first to clearly demonstrate the truth of the phenomena, little or no advance has been made, and but a quasi-assent obtained to what cannot be denied.

Though Drs. Charcot and Richer in our pages present no physiological explanation of the phenomena of hypnotism, we think it interesting, in connection with their paper, to present in brief the recent views of Dr. Brown-Séquard relating to the physiology of the phenomena in question.

¹ Recherches expérimentales et cliniques sur l'inhibition et la dynamogénie. Application des connaissances fournies par ces recherches aux phénomènes principaux de l'hypnotisme et du transfert. Par M. Brown-Séquard, Professeur de Médecine au Collège de France. Paris, 1882.

The neuro-physiologists of to-day are divided into two parties : the localizationists, headed by Charcot, Fritsch, Hitzig, and Ferrier ; and the inhibitionists, of whom Brown-Séquard is the chief representative. In the pamphlet of thirty-seven pages referred to, Brown-Séquard makes an application of his researches in explanation of the phenomena of hypnotism and transfer. His conclusions are as follows :

1. The inhibitory power belongs to a great many parts of the nervous system, and it is set into activity either by direct or reflex action.

2. All the activities, all the normal or pathological properties of the central or peripheral nervous system, and consequently all the functions of this system, may be inhibited.

3. The irritability of the contractile tissues can be inhibited.

4. What is true of inhibition is equally so of dynamogeny.

5. Inhibition and dynamogeny are usually produced simultaneously by the same irritation.

6. The pretended motor centres of the brain may be inhibited or dynamogenated as other parts of the nervous system.

7. The phenomena of augmentation and diminution of force, properties, and activities, which are met with in hypnotism, are the phenomena of inhibition and dynamogeny.

8. The phenomena of transfer of anæsthesia and hyperæsthesia are also due to inhibition and dynamogeny.

The experiments which Brown-Séquard has made form an important contribution to the subject, and if his experiments are admitted his conclusions may be accepted, for no other theory in the physiology of to-day will explain them. The discovery by Dr. Ott, that in mammals inhibitory ganglia are located at the base of the thalami and head of the *crura cerebri*; that they decussate in the pons Varolii and medulla oblongata, part passing down the internal half of the middle third of the lateral columns ; that section of the inhibitory fibres by hemisection of the pons produces crossed hyperæsthesia ; that the head of the *crura* inhibits the vesical sphincter, and so on, seem to have been overlooked by Dr. Brown-

Séquard. We believe that they throw considerable light upon inhibition-phenomena.

WE SHOULD LIKE TO HEAR FROM IT: Under the editorial caption of "*We should like to hear from THEM*," the *Evening Telegram* of late date asks, "What has become of the band of reformers united two or three years ago for the purpose of doing every thing possible to improve the management of the various public lunatic asylums throughout the State?" and continues, "It is desirable to know whether such an association no longer exists, for the monstrous evils inherent in the present insane-asylum system have never yet been attacked with that force which is thoroughly remedial in character."

In the *New York Herald* of March 7, 1882, a regular correspondent from Albany writes: "A good deal of interest has been manifested in the investigation going on for some time past by a special legislative committee, consisting of Senators Woodin, Fowler, and Pitts, relative to the management and condition of the insane institutions throughout the State. These gentlemen have just completed an interesting report to the Legislature in which they make the following statements:—" etc., etc. And in the April, 1882, number of this JOURNAL we find that "On March 6, 1882, a select committee of the Senate, appointed two years before, presented their report, on the management of the State lunatic asylums"; "no bill for carrying into effect the recommendations of the committee has yet been prepared."

We now ask, What has become of this report? Beyond the brief glimpse of it obtained by the correspondent above referred to, no one else friendly to lunatic-asylum reform has ever been able to see it. Where is it? By what political jugglery is it suppressed? Why is it not made public? It was ordered printed a year ago. Who controls the State printer? *We should like to hear from IT!*

Will the *Telegram* publicly ask the questions we have asked above,—will it unearth the mystery?

What can reformers do when a favorable report obtained after

years of strenuous effort is concealed from the public by political trickery ?

Let the *Telegram* and the daily press in general, put the blame where it belongs. Let another "band" arise who shall reform the Legislature ; then possibly the honest citizen and the oppressed lunatic may have an fair hearing.

WHILE we are on this subject of the suppressed report of the special committee of the Senate, we may allude, in the words of a previous communication to this JOURNAL, to its character and the incidents that led up to it.

"On the 30th of March, 1879, a petition was presented to the Legislature in which charges of mal-administration were made against the various lunatic asylums of the State and against the State Commissioner in Lunacy. The matter was referred to the Committee on Public Health. That committee made its report on the 22d day of May in that year. The investigation made by that committee and their report based thereon were made the subject of comment and criticism by the New York Neurological Society—a society numbering among its members some of the most eminent men in the medical profession in the city of New York, who, in January, 1880, published an answer, in which it was claimed that the report of said committee was unjust, *ex parte*, and untruthful, and said charges were therein reiterated. The action of this society was widely circulated, the effect being to create a general feeling of distrust in the public mind as to the management of the lunatic asylums of the State and a demand for further investigation was pressed upon the attention of the Legislature, and in pursuance of said demand this committee was appointed.

"The committee have visited most of the lunatic asylums of the State, and have examined as witnesses superintendents of asylums, attendants, trustees, managers, medical experts not connected with asylums, patients confined therein, the State Commissioner in Lunacy, and whomever they thought might be able to throw light

on the matters under investigation. As their labors progressed new and additional subjects of inquiry unfolded themselves, so that your committee have not limited their examination to the specific charges made, but have attempted to go over the whole field of lunacy administration."¹

It will thus be seen that this report was thorough and calculated to throw much light upon the management of our public asylums.

We quote a few passages from the Albany correspondent's résumé of its conclusions :

"In our systematic treatment of the insane in asylums, public and private, and in our supervision of asylums, we are in this State very far behind Great Britain. * * * We are behind Europe in not having a central supervisory lunacy commission. * * * The first great need of our State is the appointment of a lunacy commission, consisting of three or more persons, specially fitted for such an important trust. * * * Under the present system, or rather lack of system, needed reforms are retarded to the detriment of the tax-payers. * * * Among those who have given attention to the subject there is entire unanimity that the asylums of the future should be more simple in construction, located upon economical farms, where patients may be employed with profit to the State and immeasurable advantage to themselves—less to gratify the æsthetic taste of asylum officials, and more for the comfort and recovery of the insane. * * * The medical officers in many of our asylums, and the attendants also under their influence, show a disposition to resist the introduction of changes and improvements in asylum management which observation and experience in other countries have demonstrated to be invaluable in the treatment of the insane ; their pertinacity in resisting these changes is not easily accounted for."

And we may add, the means by which some one has been able to suppress this report (expressing in full the views of the "band of reformers" inquired after in the *Telegram*) are not easily to be accounted for. We should like to hear from it.

¹ JOURNAL OF NERVOUS AND MENTAL DISEASE, April, 1882, p. 349.

NEARLY a year ago, Governor Hoyt, of Pennsylvania, appointed a commission of six, the medical members of which were Drs. S. Weir Mitchell, Joseph A. Reed, and J. T. Rothrock, to examine into the system for the care of the insane in that State.

The commission has just reported a scheme of legislation on the subject referred to them, which, they say, indicates the direction of the most moderate and conservative thought upon the subject. In many respects, however, their report and its recommendations, as expressed in an accompanying proposed act of Assembly, are in advance of any thing that has yet been accomplished in this country. The views expressed are those which have already been so forcibly enunciated by the New York Neurological Society, and which have borne fruit in the Senate report (albeit suppressed) of the New York Legislature.

A Committee on Lunacy is recommended, to consist of three additional members to the Board of Public Charities.

The propriety of exercising a censorship over letters written by patients in any establishment for the care of the insane is thought unjust and injurious, and postal facilities have been provided in their behalf. It is questioned whether a prohibition of the right of correspondence can be maintained legally.

Since patients have been frequently detained long after their recovery, the commission advises the adoption of a section making the medical superintendent liable to a civil action if it be shown, by judicial sanction, that he has acted in bad faith or negligently toward the patient. By the present law superintendents are irresponsible in this matter.

In regard to authorized visitors and their visits, there exists no such mystery as should prevent an intelligent and judicious person from investigating the needs, so far as his general well-being is concerned, of any patient in an institution. This fallacy is not suffered to exist in Great Britain. The commission has provided for the proper inspection of all places where the insane are detained.

A physician named by the family or near friend will be allowed

to visit and examine an insane patient, at any time, with the consent of a judge, and to prescribe for bodily ailments with the consent of the chief physician of the institution.

These and many recommendations of a similar nature indicate that the movement for reform is extending with a momentum that cannot be resisted even by the well-trained forces of a faction of the Association of Superintendents of Asylums. The administration of some of our asylums is internally corrupt, and is externally allied to the basest political patronage system. On a small scale, the representatives of the present asylum administration present an instance of the most tyrannical power that exists in this country.

The aim of the movement for reform is to overthrow their barriers of secrecy, mystery, and seclusion, to display the inner workings of these institutions to the public, and to break their affiliations with low politics.

Insane patients within a year have been found heavily chained to the floor in cells in an asylum in this State. The public, apathetic as it may appear, will not tolerate facts like this, once made clear. But what the public or its representatives must have is power to visit, examine, watch, and report. This is just what the proposed act means.

THE THERAPEUTIC ACTION OF MAGNETS.

As Dr. Roberts Bartholow truly remarks in his treatise on medical electricity, reviewed at some length in another part of this JOURNAL: "So much suspicion has attached to the medical applications of the magnet, that the medical profession have rather avoided the subject." The same may be said of metals applied to the surface of the body. We do not here intend to discuss the merits of these questions, but since both "magneto-therapy" and "metallo-therapy" are now squarely before the profession, backed by the reports and experiences of eminent physicians on the continent, we think it not uninteresting to note that priority in both systems apparently belongs in the one case (metallo-therapy)

to England, in the other (magneto-therapy) to America. Concerning the former we merely adduce the title of a work published in the year 1800, upon "The Efficacy of Perkins' Patent Metallic Tractors in Topical Disease," etc., by Benjamin Douglas Perkins, A.M. (son of Dr. Perkins, the discoverer), London, 1800. In this work the ideas of Burq are forestalled. Concerning the latter we quote from Dr. Bartholow, p. 147, certain passages that demonstrate that magneto-therapy was equally forestalled by our countryman, Dr. John Vansant, in his paper "On the Physiological Action of Magnetism," published in the *Journal of Psychological Medicine*, New York, April, 1870, p. 264.

"Dr. Vansant found that the south pole of a bar magnet applied to an accidental blister on his finger 'gave rise to a momentary sharp sensation,' but when the north pole was applied there was 'no sensation at the moment of contact, and after its removal the original pain remarkably subsided.' This observation was confirmed upon the conjunctiva: the south pole excited pain on contact, which was independent of the sense of touch, but no corresponding irritation from the north pole was experienced. To eliminate the influence of the imagination, Dr. Vansant extended his investigations to plants and to the lower animals. He found that the application of a magnet near, or barely in contact with, as well as gently touching, the plants, 'exerted an influence on their vitality.' 'The shrivelling petals, the changing color of the flower and leaves, the sudden emission of perfume, and the early decline,' were the evidences of the action. On small animals—earthworms and spiders—the magnet acted powerfully, causing death on alternate application of the poles. On larger animals, the effects were excitant or soporose, according to the mode of application. The polar effects were very remarkable as developed in man. As a result of a large number of observations, Dr. Vansant ascertained that there were regions reacting in a certain well-defined manner to the poles. * * * By applying north and south polarity to different parts, very extensive subjective impressions are experienced: they are of two classes—of height-

ened organic activity, and of a lowered functional condition."

Vansant's main purpose was to develop the physiological actions of magnets. In his experiments he made use of a bar magnet, and in this manner was able to differentiate accurately the action of the two poles. He made, also, certain clinical deductions, as for instance, that since the north pole of the magnet excited irritation, and the south pole allayed it, that therefore the south pole was to be used in neuralgia and in inducing the return of lost cutaneous sensibility—the main claim lately advanced for the therapeutic use of the magnet.

THE National Association for the Protection of the Insane and the Prevention of Insanity held its annual meeting in Philadelphia, at the College of Physicians, on Jan. 25th and 26th, having been invited to meet in that city by over a hundred of the leading men of the State, including Gov. Pattison, Ex-Gov. Hoyt, Gen'l Hartranft, Wayne McVeagh, Bishop Stevens, Bishop Simpson, and many prominent physicians.

An enjoyable feature of the occasion was a reception, tendered to the Association by Prof. Samuel D. Gross, M.D.

The papers read were of an interesting, practical, and instructive character; and the discussions which followed were participated in by representative judges, physicians, and philanthropists.

The practical work of the Association is to be done through its Executive Committee, which is composed of the President, Joseph Parrish, M.D., of N. J., the Secretary and Treasurer, Miss A. A. Chevaillier of Boston (*ex-officio* members), Dr. Wm. B. Atkinson (Sec. of the Amer. Med. Assoc.), Mr. Clark Bell (Pres. N. Y. Medico-Legal Society), and Dr. Charles K. Mills. Vice-Presidents are substituted for the councillors provided for under the old constitution of the Association.

The additional Vice-Presidents who were elected at this meeting are Hon. Joseph Perkins (President of Ohio State Board of Charities), Hon. G. S. Cannon of N. J., Dr. W. J. Morton of N. Y. and Dr. Walter Channing of Boston.

Among the more important resolutions adopted by the Association was one (on motion of Prof. Gross, M.D.) recommending that there should be a skilled gynæcologist connected with the medical staff of every insane hospital.

On motion of Judge Pierce, recommending the regular occupation and employment of patients as a remedial measure.

On motion of Dr. C. L. Dana, that a committee be appointed on statistics regarding the increase and causes of insanity, and the condition of the insane.

On motion of Miss Chevaillier, that the Executive Committee draft a bill and present it at the next session of Congress, creating a national lunacy commission of enquiry into the causes and treatment of insanity, with recommendations as to prevention and cure.

Miss Chevaillier also urged, in her report, that institutions for the care and cure of the insane shall be called "Hospitals for Mental Diseases," rather than lunatic or insane hospitals or asylums.

The Executive Committee has ordered a circular to be sent to hospital superintendents, asking their opinion upon this change of name.

It is urged as an educator to public sentiment regarding insanity, out of consideration to the feelings of patients, both while inmates and after discharge, and as a stimulus to psychiatry, that insanity may be practically as well as theoretically recognized as a disease requiring more than safe custody and narcotics for its treatment.

It was also resolved, that a committee be appointed to prepare and present a report on the proper law regarding the commitment, care, and release of the insane, with a bill.

The Association is considering the matter of holding a meeting at Newport in July. This will be a wise step, as there will then be sufficient time to present bills for legislative action to the respective State Legislatures and to secure action during the following winter; whereas, if no meeting is held until next January, it will be too late to effect legislation in 1884.

It is proposed to change the name of the Association, and various names have been suggested, *e. g.*, "American Association for the Advancement of Mental Science and the Improvement of the Condition of the Insane," "American Lunacy Reform Association," and others.

The Association is desirous of increasing its membership. The annual fee is two dollars a year, which can be sent to the Treasurer, Miss A. A. Chevallier, 7 Highland Park Avenue, Boston.

The quarterly journal will be sent to all members, free.

WE would call the attention of our readers to the review of the Report of the Managers of the State Lunatic Asylum at Utica. The object of such reports is to enlighten the Legislature and the public upon matters that come within their scope. If, on the contrary, they are uncandid or deceptive, they bring discredit upon asylum management generally, and justify even severe criticism. If the reviewer has established his positions the tone of the article will hardly be objected to by candid readers.

The medical profession at large will be none the worse for having their attention called to the curability of insanity; the causes that operate to prevent its early treatment; the possibility of successful treatment in a certain proportion of the insane, by the family physician; and the real grounds that justify the commitment of patients to an insane hospital.

THE first meeting of "The New York Society of Medical Jurisprudence" was held at the Academy of Medicine on Thursday evening, January 11. The society is a marvel of rapid growth, characteristic of the intense professional life in New York. The old society—the New York Medico-Legal—seemed in many respects to be at the height of prosperity, at least, if the number of new members elected and the noise and stir that attended its proceedings were fair indications.

At its annual meeting, held last month, a difference of opinion arose, as a result of which, a minority—by the way a large one—

withdrew from active work without, as a rule, resigning and set to work to form a new society. This was scarcely said than done, and the result is the New York Society of Medical Jurisprudence, a report of whose proceedings at the first meeting is given in other columns of the JOURNAL. The membership is already more than one hundred. This activity in New York is the more remarkable when we recall that in Great Britain there is not a single medico-legal society ; in France but one ; in Italy one now in process of organization ; and in America but two previous to the formation of this, the third.

DR. EDWARD C. SEGUIN.

At a stated meeting of the New York Academy of Medicine, held November 16, 1882, the following preamble and resolutions, reported by a committee appointed by the President at a former meeting, were unanimously adopted :

Whereas, Dr. E. C. Seguin, an honored fellow of this Academy, has been stricken with a domestic calamity so overwhelming as to paralyze him with despair, and so heart-rending as to command universal compassion ; therefore,

Resolved, That the Academy of Medicine offers to Dr. Seguin the expression of its profound and respectful sympathy and commiseration.

Resolved, That while the Academy regards with solicitude the effect which this tragic bereavement may have upon a useful and brilliant career, it will cherish the hope that Dr. Seguin may recover the spirit and the strength to return to his home and to take up his work in the sphere in which he has already achieved wide and well-merited renown.

Resolved, That a copy of these resolutions, signed by the President and Secretary of the Society, be forwarded to Dr. Seguin, and be published in the medical journals of this city.

TRANCE AND SEA-SICKNESS.

PROF. EDWARD D. THWING, in a paper recently read before the New York Academy of Sciences, proposed to treat sea-sickness

by producing in the patient the trance state. During a recent voyage he put this idea into practice, and details a number of experiments in which he was successful in relieving nausea and other distressing symptoms. The experiment probably is novel so far as relates to sea-sickness, though this affection is but one of the multitude of ills for the abolition of which the hypnotic state may be employed. Prof. Thwing also hypnotized subjects and produced the customary surgical anæsthesia, seemingly unaware that the same had been done systematically in hundreds of cases, notably by Esdaille, who reports operations even as severe as amputations performed upon patients placed in the hypnotic condition.

Prof. Thwing, as reported, is quoted as speaking "earnestly of the domination of one will over another." We had hoped that nonsense of this kind had ceased, at least in scientific circles, for if there is one thing settled in modern times in regard to hypnotism, it is that the condition is a subjective and not an objective one. In other words, if the subject goes into the hypnotic condition it is not due to the domination of the will of the operator, but rather to the special condition of the subject, who, so to speak, has the hypnotic diathesis. And herein lies a great drawback to the employment of hypnotism as a therapeutic measure. Few have the hypnotic diathesis, just as few have consumption, cancer, or other diseases. The therapeutic applicability of hypnotism is therefore limited, and we doubt if the advantages gained justify us in cultivating this diathesis, either in those in whom it is easily provoked or in those in whom it does not exist but may be created. Prof. Thwing's experiments rest then as another contribution to the long line of efforts that have been attempted to make available the hypnotic condition as a curative measure in medicine. And while no one doubts the verity of the hypnotic phenomena, one main objection at least to attempts of this kind is to be found in the uncertainty of the means employed.

THE post-mortem examination of the body of Dr. George M. Beard, who died in this city on Tuesday, January third, revealed

that death was due to embolic pneumonia, originating in an abscess of the upper maxilla. A large portion of the right lung was consolidated. The left lung was of a dark color, soft, and would soon have become gangrenous. The abscess of the upper maxilla was due to a diseased tooth.

GEN. SPINOLA has lately presented in the New York Assembly a bill authorizing the creation of Commissioners in Lunacy in every county in the State, said commissioners to be chosen only from physicians in reputable standing, who have been in practice at least twelve years.

New York City, under the provisions of the bill, would be favored with three commissioners appointed by the mayor, and receiving an annual salary of \$5,000 each. According to *The Medical Record*, the entire number of such officers for the State would amount to one hundred and eighty.

Veluti in speculum. Would the neurologist see himself reflected in a mirror of public opinion, he may peruse the following account of an examination of a paraplegic, penned by an editorial writer in a recent number of the *New York Tribune*.

A man in Port Jervis, N. Y., in December last was caught between two cars and was taken home in a helpless condition, apparently paralyzed from the waist down. He was also laboring under the weight of two additional misfortunes. He had taken out several accident insurance policies, and he is said to have had an unfavorable reputation. For both he did ample penance. He was held to be shamming, and scientific investigation was set at work. "Needles were thrust to the bone in his limbs, and deep incisions were made with lances. He submitted to these tests twenty-eight different times without evincing the slightest physical pain." The scientific investigators, not being satisfied, wished to administer anæsthetics, so that the control of the nerves might be destroyed, but the subject refused his consent. At this point one doctor, whose curiosity was sated, withdrew, believing the man's lower extremities to be really paralyzed and without feeling, a conclusion that appears highly reasonable. But more inquisitive scientists arrived in the interests of the insurance com-

pany. They applied a powerful current from a galvanic battery. There were two results, "a slight upward motion of one big toe," and "the burning of the flesh deeply" by a portion of the wire which was uncovered. A "bottle of boiling water" and a piece of ice were then passed up and down the patient's legs, but he said that he felt no sensation of heat or cold. "For the next test the doctor took a pair of sharp-pointed dividers or calipers, and, spreading them apart, thrust one point in the subject's leg and made a deep circle in the flesh with the other. This was done in several places. The patient did not wince under the test." The scientific investigators declined to say what they thought of the result. Neither are the thoughts of the patient chronicled.

It is to be regretted that the doctors said nothing, because it would be pleasant to know that scientific curiosity was for once fully satisfied. Probably this will not occur, however, until the man's lower extremities have been cremated in a blast furnace or run through a stamp mill.

WITH the new year some of our valued exchanges come to us in new improved dress. Monthlies have been converted into weeklies, and weeklies have enlarged their pages. Prominent among the alterations referred to, we note that in *The Medical Record*, published by William Wood & Co., of New York. The size of the *Record's* sheet is enlarged nearly fifty per cent., and we are promised two hundred additional pages a year of reading matter; the quarto shape gives place to a broad and long page, which presents a most attractive feature.

A series of articles, under the general heading of "Practice of Medicine," by American authors, is promised, and as a guaranty of their appearance a list of the authors is given. The *Record* is under the able editorial management of Dr. G. F. Shrady. It has never appeared to better advantage.

The New York Medical Journal (monthly), published by D. Appleton & Co., has become a weekly. Vol. xxxvii., No. 1, is referred to as "A Weekly Review of Medicine." The new weekly presents a most creditable appearance; like the *Record* its pages are large and double-columned. The *Journal* was excel-

lent as a monthly—it is better as a weekly. Dr. F. P. Foster continues in editorial control.

The *Medical News*, published by Henry C. Lea's Son & Co., of Philadelphia, retains its former size and shape, unwarned, probably, of the intentions of its two powerful New York rivals.

Gaillard's Medical Journal (monthly), formerly *The Richmond and Louisville Medical Journal*, has undergone still another transformation, and now comes to us in the form of an enterprising weekly, entitled *The American Medical Weekly*. We notice that one of our ablest contributors and co-workers, Dr. Jas. G. Kiernan, of Chicago, takes charge of a prominent feature of the *Journal*, viz., "Original Abstracts." The change bespeaks success.

CEREBRAL HYPERÆMIA.

In a recent lecture on "Brain Health," at Edinburgh, Dr. J. Batty Tuke, referring to loss of sleep, said that it was brought about thus: When the brain was being actively exercised, there was an increase of blood in its vessels—this was spoken of as a "functional hyperæmia." If the exercise of the brain powers was too long continued, there was a tendency for the blood to remain in too great quantity, from the cells becoming exhausted and not being able to control the vessels. In sleep the amount of blood was diminished, and sleep could not be procured if this functional hyperæmia persisted. In the absence of sleep, the cells could not recover themselves, and their activity became impaired. Headache, loss of appetite, and general listlessness followed.

Similar views to these expressed by Dr. J. Batty Tuke have been held and widely promulgated in this country during the last ten years. They have been subjected, however, to much and sometimes violent adverse criticism.

In a recent meeting of the Academy of Medicine a prominent member cynically referred to that "great delusion, cerebral hyperæmia."

But Voisin in his recent work and Luys in a work just published, have based their entire doctrine of the pathology of insanity

upon the variations of the blood supply in the brain. Luys, speaking in general terms, divides the insane into two classes—all the exalted are hyperæemics, all the depressed are anæemics. That these views are entertained by these and other equally eminent physicians abroad shows, so far as the testimony goes, that something more than the arguments thus far brought forward must be advanced by those who would negative the existence of the condition termed cerebral hyperæmia.

Periscope.

a.—PHYSIOLOGY OF THE NERVOUS SYSTEM.

THE OLIVARY BODIES.—Bechterew has made experiments upon these bodies. It has long been known that deep injuries to the medulla oblongata, especially in its posterior part, caused forced rotation of the animal on its long axis; the same characteristic being seen after section of the cerebellar peduncle. He tried to determine in what part of the medulla the fibres going to the cerebellum arose, and whose section was followed by movements of rotation. His experiments were made upon dogs, as they have a larger space to operate on than is the case with rabbits. Only when he made sections at the level of the olivary bodies, were deep injuries of the medulla oblongata followed by movements of rotation. In deep lesions of the medulla oblongata in the neighborhood of the calamus calling out movements of rotation, it was found that a part of the corresponding olivary body was injured. On narcotized animals the muscles of the back part of the neck were divided, and the occipito-atloid membrane laid bare. Through a small opening in this membrane a small knife was introduced, and the olivary body alone was injured, without any lesion of the neighboring cerebellar peduncle or other parts of the medulla oblongata. When the olivary body has sustained a considerable lesion, then the results are completely analogous to those seen after injury of the posterior cerebellar peduncle. Immediately after the operation there is a marked twisting of the head and trunk on the long axis of the body, so that the side of the cheek corresponding to the lesion is turned downward and the opposite cheek upward. On the injured side the ball of the eye is turned downward and outward, the other upward and inward. Nystagmus is present in both eyes. The body rotates toward the side of lesion, and this movement takes place in paroxysms. No motor or sensory defects were present. When both olivary bodies are considerably injured, the animal staggers, there is shaking of the head and trunk with nystagmus. Not seldom the animal loses the power to go or stand, without the presence of a paralysis. All these tottering movements were most marked during the first day after

the operation ; later they became weaker and weaker ; and in case of a limited lesion of the olivary body, the animal recovers nearly completely. These facts lead him to the conclusion that the olivary bodies constitute an organ which stands in near relation to the cerebellum and its functions, just as the semicircular canals and the gray matter of the third ventricle does. Looking at the olivary bodies as united on the one side with the posterior columns of the spinal cord, and on the other side with the cerebellum, he puts forth the hypothesis that they are an organ in which peripheral tactile sensations are reflected and conducted to the central organ of equilibrium, the cerebellum. With this view we have three organs of equilibrium in connection with the cerebellum : the semicircular canals, which are also connected with the organ of hearing ; the gray substance of the third ventricle, which stands in relation to the organ of sight and the movements of the globe of the eye ; and, finally, the olivary gray matter, which is probably connected with the organs of tactile sensibility.—*Pflüger's Archiv*, Band xxix, Heft. 5 and 6.

PHYSIOLOGICAL OPTICS.—M. W. Le Conte Stevens has made some experiments in physiological optics, using, partly, the light of the electric spark. They show that in the new mode of stereoscopy the play of the eyes is by no means necessary, although it constitutes an important aid in all cases where a clear visual judgment is not attainable at the first glance. They show, also, very conclusively, that the conscious perception of double images in the binocular field of view, on which so much stress is laid by Sir David Brewster, tends rather to interfere with it. His idea is to discard intuition entirely, and, with Helmholtz, to regard the degree of attention bestowed on objects pictured at the same moment on different parts of the two retinas as an element of more import than either play of eye or the perception of double images.—*London Philosophical Magazine*, October, 1882.

EFFECTS OF METALLIC EXCITATION UPON THE MOVEMENTS OF CILIATED EPITHELIUM.—Bæcci, after giving a short history of the experiments upon ciliated epithelium, describes an instrument, consisting of a table, corks, and a lever, which inscribes the movement communicated to it by the epithelium. For the excitation, he used thin polished discs of the metals. The œsophagi of frogs were used in the experiments. The metals were divided, according to their effects upon the movement of the cilia, into exciting, inhibitory, and indifferent. The indifferent metals were iron, tin, and lead ; the exciting metals are copper, gold, and silver ; whilst the inhibitory are zinc, cadmium, and bismuth.—*Rivista clinica di Bologna*, Sett. e Otto., 1882.

THE NUMBER OF NERVE-FIBRES AND MOTOR GANGLION CELLS IN THE SPINAL CORD OF THE FROG.—E. H. Birge has made some

experiments upon this point with osmic acid and the microscope. His results are as follows : 1. The frog has as many ganglion cells in the anterior horns of gray matter as there are nerve-fibres running in the anterior roots. Every motor ganglion cell corresponds to a motor fibre. 2. In general, in the part of the spinal cord about the root there are found as many cells as the root has fibres ; when in an individual case there is an irregularity in the division of the fibres in the roots, there is also an irregular division of the cells. Hence it is probable that the ganglion cell belonging to the corresponding nerve-fibres lies not far from the entrance of the corresponding fibre into the spinal cord. 3. The number of the ganglion cells, as well as the number of nerve-fibres, varies with the weight, that is to say, with the age of the frog. Where a certain minimal number is found in small frogs, there is a proportional increase of ganglion cells and nerve-fibres corresponding to the increase of weight. Hence new fibres and cells are formed during life, and a certain proportion exists between the weight of the muscles and the number of motor elements. 4. The number of sensory fibres in the same frog is somewhat greater than the motor. 5. The two roots have together the same number of fibres as the trunk immediately behind the spinal ganglion. There is no increase or decrease in the number of sensory fibres by its passage through the ganglion.—*DuBois' Archiv*, 1882. 5 and 6 Heft.

THE IRRITABILITY OF THE MOTOR GANGLION CELLS OF THE SPINAL CORD.—Dr. E. H. Birge has also made experiments upon this point. If in an irritable spinal cord of a frog there is a fine wire run through the cord from its anterior end backward, it is found that the posterior extremities fall into a strong tetanus, when the disturbing injury strikes in the neighborhood of the plexus ischiadicus. When the needle-point is driven through the nerves outside the spinal cord, no similar phenomenon appears ; hence the tetanus is a peculiarity of the cells of the spinal cord from which the nerves arise. Under the direction of Prof. C. Ludwig he tried to determine the place of origin of the tetanus. It was accomplished by means of a steel needle and a magnifying glass. His results were as follow : 1. When the needle-thrust in a spinal cord not removed causes a tetanus, whose time of irritation lasts several seconds, then the muscles attacked are on the same half of the body in which the spinal cord has been perforated. If after a thrust in only one side of the spinal cord, both halves of the body pass into a state of tetanus, then a careful examination of the conditions of the experiment will show that teasing or pressure has extended simultaneously over both halves of the spinal cord. 2. Irritation along the length of the spinal cord in definite sections causes definite muscles to pass into tetanus, and these alone ; thus, if the thrusts are limited to a piece extending from the end of the fourth ventricle to the origin of the third pair of nerves, then the muscles of the anterior extremities

pass into a state of tetanus. From the third pair to the seventh, the irritation causes tetanus of the trunk muscles; and finally, from the seventh to the ninth pair of nerves, the muscles of the posterior extremities. The last segment of the cord was only thoroughly examined. 3. After splitting off of the white and gray matter of the posterior columns, or also a great part of the white lateral columns remains over, then a needle-thrust brings out a tetanus. This never succeeds when with all possible care the remaining parts of the anterior gray horns are removed. 4. Lines drawn at right angles to the long axis of cord may be separated into three segments from the results of the needle-thrusts. The innermost, which begins along the longitudinal furrow and reaches to the median edge of the gray anterior horns, is inactive. The second segment corresponds to the diameter of the column of ganglia. The needle-thrusts which penetrate this segment always bring out tetanus. In the third and remaining segment contractions are called out and so much more certainly, the farther the point of puncture is laid from the circumference of the spinal cord. The place through which an irritation calls out tetanus, can be very sharply defined by a careful introduction of the needle; if it penetrates 0.1 mm and less from the border of the ganglionic mass, then the tetanus does not appear.—*Du Bois' Archiv*, 1882, 5 and 6 Heft.

FEVER.—Dr. W. Finkler has made a most exhaustive study of the phenomena of fever experimentally produced in animals. He made a large number of experiments. Since Tcheschicin first, from experiments announced that there was a centre inhibiting the production of heat, there have been no very accurate methods carried on to prove the fact. Finkler, however, has taken the most accurate method to settle the question; that is, a quantitative estimate of the oxygen absorbed and of the carbonic acid given off. At Pflüger's school at Bonn, it has been found that in guinea-pigs cold increases in a very regular manner the generation of carbonic acid and the consumption of oxygen. In this school it has also been shown that in poisoning with curare the production of carbonic acid and the absorption of oxygen fall greatly, showing that the nervous system is a factor in the tissue metamorphoses. The temperature here also fell. It was also further established that section of the medulla oblongata was followed by similar results, there being here a partial removal of the nervous system. Finkler measured the oxygen consumed and the carbonic acid given off, and compared these with a time unit and the weight of the animal. From his experiments the law is deduced that the consumption of oxygen is greater during the fever-elevation of temperature than takes place by animals not feverish, under like conditions of food and surrounding temperature. He also thinks that in fever there is an increase of carbonic acid given off, due to increased heat-production. When the oxidation passes through the three phases of increase, continuance at a height, and decrease, it corresponds only

in a general way to elevation, continuance at a height, and decrease of temperature. Finkler arrives at the conclusion that fever is a neurosis, mainly a disease of a nervous system, regulating the temperature. Pflüger's theory to explain the regulation of heat is as follows: an automatic centre which presides over the production of heat, and another centre which acts upon the automatic centre as an inhibitory apparatus, and on its side stands in connection with the temperature nerves of the skin, and is set into activity through the action of heat, so that the so-called coldness in general is not an irritant. When the excitation of the inhibitory centre slackens, then the automatic enters into activity, so that coldness of the skin corresponds to increased production of heat, whilst warmth of the skin corresponds to lessened formation of heat. Finkler explains the action of these centres in fever as follows: intense, increased oxidation destroys the substance generating the fever. The chilly feeling and contraction of the capillaries denote increase of warmth-production; that in the first stage of fever a stronger excitation of the automatic centre takes place, because the nerves of the inhibitory centre are in a more or less paralytic state. In the second stage of fever, when the temperature of fever is constant, the relations of the two centres are changed. The production of heat remains as in previous stage, increased to about the same extent. The inhibitory centre has again attained its domination over the automatic, not because the latter in its excitation is toned down, but because the inhibitory centre has again a greater power of conductivity. In the return of the temperature to normal, or the decrease of the fever, here the increase of the tissue-metamorphoses lessens, the excitation of the automatic centre weakens, since the fever-producing material is eliminated. The inhibitory centre which, in the previous stage, had a relative domination over the automatic, now reacts normally or with subnormal irritability. Finkler made an experiment during this period, and found a considerable sinking of the oxidation below normal.—*Pflüger's Archiv*, Band xxix, 3 and 4 Heft., 1882.

HYPNOTISM.—Drs. Tamburini and Seppilli have made a series of studies upon the phenomena of motion, sensation, respiration, and circulation in the state of lethargy, catalepsy, and somnambulism. In the state of lethargy there is nervo-muscular excitability; in the cataleptic state the limbs are plastic. In the state of lethargy the tendon reflexes are exaggerated; in the cataleptic state, greatly diminished. The paradoxical muscular contraction is produced in lethargy with the greatest facility, and not so readily in the cataleptic state. When the paradoxical muscular contraction is produced either in the stage of lethargy or catalepsy, the passage from one state to the other resolves it. In the state of lethargy there is not complete analgesia; in catalepsy it is complete.

In lethargy the ovary, when pressed upon, is hyperæsthetic; in

catalepsy no pain is felt. In lethargy the respiration is regular and moderately deep; in catalepsy the breathing is slow, superficial, and irregular. When a magnet is used in the vicinity of the epigastrium an apnoea results for some seconds. In lethargy the blood-vessels of the extremities dilate; in catalepsy they contract, as is shown by the plethysmograph. When a sphygmograph is placed upon the carotid in a state of lethargy, a strong progressive augmentation of the height of the pulse-curve takes place, if a magnet approaches the head. It has no effect on the pulse in catalepsy.—*Rivista sperimentale di freniatria e di medicina legale*. An. viii, Fasc. iii.

ISAAC OTT, M.D.

b.—GENERAL PATHOLOGY OF THE NERVOUS SYSTEM.

INJURY TO THE HEAD; SLIGHT CONCUSSION; RAPID ACCESSION OF COMA AND DEATH.—The patient, æt. fifteen, a rather anæmic-looking boy, was brought to the London Hospital on April 29th. He was said by his friend to have taken a dive in the river, striking his head with violence on the bottom. The symptoms agreed with this account, the patient being on admission in a dull and semi-unconscious state, complaining only of headache, and apparently suffering from slight concussion of the brain. He was left at rest with ice to the head, and three days after admission seemed nearly well and wanted to go home. He would probably have been discharged had no further symptoms occurred the next day. The same night he again was attacked with intense headache. The pupils were dilated; no paralysis was present; speech became an evident exertion to him, and on bidding he performed movements, such as protruding the tongue, etc., after an interval. There was now noticed for the first time a slight purulent discharge from the left ear. One of the patients in the ward was told by the father of the boy on this day that a discharge had been present before admission, for which he had been under treatment outside, and also that he had previously suffered for some time with headache. This was the first intimation that the boy had been out of health, notwithstanding inquiries made of the friends. Symptoms next day were increased, and the patient died on the fifth day after admission, having been comatose about an hour before death occurred. The condition of the discs, just before death, pointed to a commencing neuritis; the margin presented a woolly appearance. On post-mortem examination the dura mater was found adherent to the brain, posteriorly. In the left parietal and temporal region was a blackened spot covering a large abscess cavity, reaching as far as, though not entering, the ventricular space, and containing a very considerable quantity of very foul pus. The temporal bone was necrosed, and pus found between that bone and the dura mater. The coincidence of the injury and the brain mischief is obviously of much interest, as supposing the boy had

been allowed to go home and then died, it would have been impossible to convince his friends that his death was not due to the injury, and that there had not been culpable want of care. Service of Mr. James Adams.—*Brit. Med. Jour.*, Sept. 16, 1882.

A CASE OF ALLOCHIRIA.—Ferrier reports (*Brain*, Oct., 1882), a case of severe cranial injury, causing prolonged unconsciousness, followed by motor disorder of a combined ataxic and hemiplegic character, from which the patient had only partially recovered at the time of his discharge, together with the temporary, remarkable perversion of sensory localization, to which Oberstine has given the name allochiria (*Brain*, July, 1881), a condition characterized by the erroneous reference of sensory impressions to the corresponding part of the other side of the body. In the case reported, besides the transposition of sensation, there was transposition of the reflex reactions. Tickling of the sole of the foot caused retraction of the other, while the foot actually tickled remained perfectly still; so, also, tickling of the inside of one thigh caused flexion of the other.

NOTES ON TWELVE CASES OF BRAIN TUMOR.—Chas. K. Mills, M.D., of Philadelphia, in a paper read before the American Neurological Society, gives the following recapitulation of his studies on twelve cases of brain tumor, from which we extract the following:

Etiology: history of syphilis in three cases; history of syphilis and traumatism in five cases; history of traumatism alone in one case; tubercular history in two cases; no history in one case.

Pathological Anatomy: gummata in six cases; fibromata in two cases; tubercle in two cases; not determined in one case.

The location of the twelve tumors were as follows: antero-parietal region, 3; Rolandic region, 3; parieto-occipital, 1; temporo-sphenoidal lobe, 1; cerebellum, 2; pons Varolii, 2. The author concludes with remarks on the local diagnosis of brain tumors.

He considers that the symptoms which point conclusively to the existence of intracranial tumor are: headache, pain on percussion of the head, vomiting, vertigo, mental disturbances, hyperæsthesia, choked discs or optic neuritis, elevated temperature of the head, constipation. *Headache* was present in every case. In ten cases, more or less headache was present all the time. The usual type of headache from intracranial tumor he describes as a continuous pain, sometimes of persistent severity, and generally with exacerbations of great violence. In two instances the pain was greatest in the region of the head nearest to the seat of growth. He refers to Callender's observation that cortical lesions are more frequently accompanied by localized pain than lesions of deeper parts. *Percussion of the head* elicited an intensified pain in the region corresponding to the location of the tumor in three

cases. It was only tested in four of the twelve cases. *Vomiting* was a symptom in eight cases. The tumors situated farthest forward in the brain appeared to be the least likely to give rise to vomiting. The author agrees with Ferrier that the majority of cases of cerebral vomiting can be ascribed to irradiation of irritation of the nerves of the cerebral membranes, or to the physical effects of acute pain. *Vertigo* was observed in ten cases. Mental disturbances of some sort were observed in almost every case, using the term in a very general sense. The majority of the patients were emotional, excited, or irritable; some of them exhibited dulness, stupidity, want of energy, or apathy. Failure of memory, depression of spirits, and headache were observed in others. Mental slowness and uncertainty; inability to fix the attention, and impossibility of continuous mental action were strikingly shown, particularly in tumors of the præfrontal regions. One case showed marked hallucinations of fear. Another case had at times maniacal attacks which usually coincided with the most violent paroxysms of headache. *Hyperæsthesia* was noted in five cases, sometimes being general, more frequently being present in the limb or limbs affected with spasm or paralysis. *Choked discs* were found in four cases. *Descending optic neuritis* in four cases, only eight were examined with the ophthalmoscope. True choked discs were present in tumors of the convexity. In three of the cases of neuritis the tumor was situated at the base, and the fourth case was a tumor of the cerebellum with hydrocephalus. The author regards the presence of choked discs, or optic neuritis, as the strongest possible corroborative evidence of the existence of an encephalic tumor. *The temperature of the head* was taken in five cases, from which the conclusion was drawn that in brain tumors the average temperature of the whole head is elevated several degrees above the normal, the greatest elevation being usually at the station nearest the seat of the growth. *Constipation* was recorded in eight cases. Severe neuralgic pains in the limbs were complained of in one of the cases of cerebellar tumor; in the other, trigeminal neuralgia. One case of tumor of the pons had frequent and severe attacks of temporal and orbital neuralgia. Persistent epistaxis and tendency to hemorrhage from the mucous membranes were observed in a tumor of the upper left quarter of the pons; profuse perspiration, more marked on one side, occurred in one case; polyphagia in one case; disturbance of the respiration in several cases; hysterical manifestation in several cases. Inflammatory, trophic, and anæsthetic phenomena in two cases; defective hearing in five cases.—*Arch. Med.*, New York, vol. viii, No. 1, 1882.

CEREBRAL ANÆMIA AND EXHAUSTION.—Dr. S. G. Webber, of Boston, reports four cases illustrating the above conditions and remarks that among the conditions of the brain most difficult for diagnosis are those in which there is irregular blood supply. He

quotes Jaccoud, who says that "under the influence of anæmia and insufficient nutrition the excitability of the nervous elements is diminished; that is to say, its effects are less energetic, and exhaustion is more rapid, but by reason of the diminished vitality of the cells the excitability is aroused by very slight causes, which in health produce no reaction. The abnormal condition is then double: on the one hand the reaction is weak and of short duration; on the other it is produced by impressions which ought to have no effect. This double condition can be well expressed by the term irritable or excitable weakness." Dr. Webber goes on to say that this condition is found in all cases of illy nourished brain, whether the defect is due to a blood supply deficient in quantity or quality, or whether it may arise from an excessive supply of blood interfering with nutrition; the same condition may arise from exhaustion due to overwork of the nerve cells, the supply of blood being nearly normal, that is, normal in comparison with the work required of the brain. As these conditions lead alike to defective nutrition of the brain, it is to be expected that many of the symptoms to which they give rise will be the same in one as in another condition. Thus the headache, vertigo, nausea, found in congestion, are also found in anæmia; the excitement, delirium, hallucinations, etc., found in hyperæmia, are also seen in anæmia. Also the same symptom may be the expression of exhaustion, or of poisoning of the blood. Much has been written about hyperæmia, and great stress has been laid upon too much blood flowing to the brain. Perhaps there are patients in which this condition exists, and yet in by far the majority of patients I believe the explanation of these symptoms is to be found in mal-nutrition from insufficient supply of food, or from inability to assimilate the food taken, or from exhaustion due to over-use, with too short periods of rest, or from inferior quality of the blood. The irritable brain may temporarily receive a relatively increased supply of blood, though its nutritive quality or its amount may be below that appropriate for health; owing to the abnormal irritability of the brain this excess over the usual supply is sufficient to cause excitement. This would be only a temporary, and perhaps a local increase of blood supply in an anæmic brain, and should not influence either the diagnosis or treatment.—*Brit. Med. and Surg. Journ.*, Nov. 1882, No. 18, vol. cvii.

ON THE SOMEWHAT FREQUENT OCCURRENCE OF DEGENERATION OF THE POSTERO-LATERAL COLUMNS OF THE SPINAL CORD IN SO-CALLED SPINAL CONCUSSION.—Dr. R. T. Edes, of Boston, in a communication to the American Neurological Association, under the above title, states that his object is to show that among the various lesions which may occur in cases of this kind (not curable by a verdict for damages) there is one, quite definite, which may come early and stay late. With the exception of

one case, his views are supported only by clinical evidence based on the occurrence of certain symptoms which are now quite generally looked upon as showing degeneration of the postero-lateral (crossed pyramidal) columns of the spinal cord. He desires to show that when the immediate effects have passed off, and sometimes when these effects have not been at all definite, the symptoms showing this lesion may be developed, and be the only prominent ones throughout the case. They consist of contractures, increased tendon reflex, and ankle clonus. *Case I.*—A lead-worker, æt. twenty-six, fell backward down stairs while drunk. On admission to the hospital the following day, had cellulitis of the right leg and various bruises on both legs; four days after was unable to move the right leg; there was incontinence of urine. Two days later the left leg would not move. He lost more or less strength in his hands. Two months after it was noticed that his legs “drew up” at night, and he had difficulty in straightening them out. Pain in the back and between the shoulders occurred; considerable muscular atrophy in the left hand, less in the right; reflex and tendon reflex about normal. Ten days later the ankle clonus was very well marked; the patellar reflex was attended with several vibrations; there was no (slight?) olecranon tendon reflex. From this time his condition continued about the same, until his discharge from the hospital unrelieved. Attempts at voluntary movement were attended with strong spasmodic movements in both legs, which could easily be excited by the usual procedure for obtaining the ankle clonus. He had a lead line on his gums, and lead was found in his urine, interesting in connection with a possible affection of the anterior horns, and atrophy of the muscles of the hand noted early in the case. *Case II.*—A laborer fell down stairs eight days before his entrance into the hospital; thinks he struck his head, but has no bruise anywhere. Immediately after the fall he lost the use of both arms and hands. He can now move his right elbow a little. His legs are weak, so that he staggers on attempting to walk. There has been twitching of both legs for the last two days. The day following his admission he did not sleep well, complaining of pain darting down the arms, which he says began immediately after the accident. The muscles react well to the faradic current. The paralysis disappeared rapidly and almost completely, and it was after his officiation as a volunteer nurse, and about two months after the accident, that it was found that the tendon reflexes of the upper extremities were greatly exaggerated; moderate taps upon the tendon of the biceps, triceps, supinator-longus, deltoid, pectorales, and even the sterno-mastoid, exciting decided and, in some instances, very active responses. Patellar tendon reflex somewhat increased; no ankle clonus. He was discharged relieved. *Case III.*—A laborer in a sewer, aged thirty-five, was injured by the caving in of a sewer seven years ago, and laid up for a week. There is no history of fracture. He has been unable to do a full amount

of work since, and his present condition has continued to develop itself gradually. His patellar reflex is much increased, the ankle clonus extreme. He feels strong, and can walk, not fast, however, and has a characteristic clinging (spastic) gait. There was much increase in excitability during a few days under the use of strychnia. While in this condition a tracing made upon a registering drum, by causing his toe to make and break a circuit while resting on the heel, shows a regularity of vibration like that of a tuning-fork. The tendon reflex in the upper extremity was very decided, but not so extreme as in Case II. Upon stopping the strychnia the irritability was considerably diminished, though still more than normal, and the clinging gait was unchanged.

Case IV.—An expressman fell on his back across a wheel, Nov. 17th, fracturing his radius and receiving other injuries to hand and arm. His legs soon began to draw up, and he had pain and twitching in them, which continued until about January 1st. Catheterization was necessary for five or six days. When first seen by Dr. Edes, early in February, his feet and legs were very œdematous, and he had several bad bed-sores. It was difficult to make any minute observation of the nervous condition of his legs, but he could move them a little. Soon after it was noted that the tendon reflex of the triceps cubiti was well marked, and shortly after his hands and arms showed in the most decided manner extreme contraction, resistance to any extension much beyond a right angle, and great muscular atrophy. He died of exhaustion, after extensive sloughing, on March 12th. A careful autopsy showed no microscopic lesions of the nervous centres, except a slight lepto-meningitis of the brain. Unfortunately, the medulla oblongata was not preserved for the microscope, and the upper portion of the cervical cord was not examined. Throughout the rest of the cord the fresh specimen showed extreme granular degeneration of the postero-lateral columns, and also the columns of Türek.

The author describes a device for testing and recording the tendon reflex.—*Boston Med. and Surg. Journ.*, vol. cvii, No. 12.

THE RELATION BETWEEN POLIOMYELITIS AND DISSEMINATED NEURITIS.—Dr. J. J. Putnam, of Boston, reported before the Boston Society for Medical Observation, three cases illustrative of this subject. The first case was characterized clinically by great pain, anæsthesia, and paræsthesia, referred to the four extremities, muscular wasting, and great diminution or loss of electrical irritability, finally delirium and stupor. After death, spots of softening were found in the optic thalami, but the cord and membrane were nearly healthy; certainly showed no marked disease. The peripheral nerves had not been examined, but it was plain that they had not been diseased, and probable that the disease was primary. In the second case, the symptoms had been those of poliomyelitis, except that localized and continued pain had been

so prominent that the diagnosis of meningitis had been entertained. After death, no trace of meningitis had been found, but an inflammation of the gray matter of the anterior cornua of the cord running throughout the entire length. The nerves had not been examined. In the third case, there were acute symptoms referable to the peripheral nerves of all four extremities, great pain, loss of electrical reaction, and marked paralysis. No headache, rigidity, or opisthotonos, until within the last days of the patient's life, except, perhaps, at the outset, in consequence of the vomiting which ushered in the attack. After death, well-marked and extensive meningitis had been found, and pronounced disease of the nerve-roots and peripheral nerves (median, ulnar, popliteal), while the spinal cord appeared healthy.

Dr. Webber, in discussing the subject, said that the first case seemed not proved to be a case of general neuritis. The second case appeared to be a good case of poliomyelitis, but the primary neuritis was not proven because the peripheral nerves were not examined. The third case seemed more properly one of cerebro-spinal meningitis. In the latter disease, the functions of the nerves are often affected; also the nerves themselves; and after recovery, atrophy of the muscles may occur, and loss of electrical reaction, which may be complete or persistent. He objected that disseminated neuritis is a new-named disease, whose existence *sui generis* is still a matter of doubt. Dr. Putnam agreed that these cases could not be used to prove the existence of primary disseminated neuritis, but considering, on Leyden's authority, that such a disease was pretty well made out, he thought the early and striking prominence of the symptoms referable to the peripheral nerves in these cases might justify their use as possible illustrations of the diagnosis.—*Boston Med. and Surg. Jour.*, Nov. 23, 1882.

INJURY TO THE CORD INVOLVING THE GENITAL CENTRE.—Furbinger relates (*Berlin, klin. Wochenschr.*, 1881, No. 43; *Centralbl. 8. Med. Wissensch.*, 1882, p. 396), a case of fracture of the spine with complete paraplegia and paralysis of the bladder in a male æt. 69. Priapism supervened thirty hours after the accident, and the urine contained spermatozoa. Thereafter a steady discharge of semen occurred until death, which supervened on the third day. A laceration of the cord was found opposite the fourth dorsal vertebra, indicating the limit of the genital centre.—*Brain*, Oct., 1882.

TROPHIC CHANGES IN LOCOMOTOR ATAXIA.—Fresh observations continue to be made of disturbances of nutrition in association with locomotor ataxia. Besides the familiar diseases of the joints and bones, and perforating ulcer, there have recently been recorded peculiar affections of the teeth and nails, ending in their shedding. Thus, Demange (*Revue de méd.*, No. 3, 1882) de-

scribes a case of tabes in which all the upper teeth fell out in a short time, without pain of the usual kind, but with darting "lightning" pains through the face, and disturbance of sensibility in the region of the trifacial nerves. Post mortem, the floor of the fourth ventricle presented sclerosis, which involved the nuclei of the ninth, tenth, and eleventh nerves, the restiform bodies, and some of the neighboring parts; sclerotic change was distinctly seen in sections of the trigeminus where it leaves the pons. In another very similar case, the loss of teeth was confined to the upper jaw. The post-mortem appearances were almost exactly like those just enumerated, but more marked on the left side. One of the instances of loss of the toe-nails is given by Joffroy (*Arch. d'phys.*, etc., 1882, No. 7). The great toes were the members affected, and there was no accompanying pain; the nails simply looking dark, with sub-ungual ecchymosis. The part was soon restored. Pitres relates in the *Progrès méd.*, No. 8, 1882, somewhat similar cases, in which, however, both great toe-nails were shed repeatedly; often deep-seated, dull pain, and a sensation of creeping in the affected parts for several weeks; and there was no ulceration or suppuration in these cases any more than in Joffroy's, and the new nails were in every instance perfectly formed, with the exception of slight superficial irregularities. An interesting instance of necrosis of the phalanges of the two great toes, in a case of locomotor ataxia, is described by Dr. Russell, of Birmingham, in the *Med. Times and Gaz.*, Aug. 19, p. 210.—*Brain*, Oct., 1882.

NYSTAGMUS PRODUCED BY THE CONSTANT CURRENT AS A SYMPTOM OF BULBAR AFFECTIONS.—Dr. Moosderf, in a communication read before the *Gesellschaft für Natur- und Heilkunde*, Dresden, on bulbar paralysis, states, as a new symptom of all bulbar affections, that by the transmission of a galvanic current transversely through the head, nystagmus is produced before the sensation of vertigo, which always accompanies such applications.—*Jahresbericht des Gesell. f. Natur- u. Heilk.*, Dresden, 1882.

W. R. BIRDSALL, M.D.

C.—MENTAL PATHOLOGY.

FEMALE CRIMINALS.—Casini (*Archivio di psichiatria*, Fasc. iii) has been examining the skulls and faces of female criminals. He found that in the skulls of twenty-five murderesses there was ultra dolicocephaly three times; mesocephaly, fourteen times; and marked brachycephaly, eight times. He found also cranial asymmetry, in twenty-five out of sixty-one murderesses; in nine out of twenty thieves; in eight out of twenty-two child-killers. Euregmatisms were found in seven out of sixty-one murderesses;

six out of twenty thieves ; two out of twenty-two child-killers. Abnormal ears were found in four out of sixty-one murderesses, and two out of twenty thieves. Imperfect development of the upper lip was found in eleven out of sixty-one murderesses ; three out of twenty thieves ; two out of twenty-two child-killers. These results would be of great value were the family and racial relations of the criminal determined. The presumption that a person committing a crime must necessarily be the victim of a congenital defect vitiates these researches, as it does the researches of Benedikt.

GRÜBELSUCHT, FOLIE DU DOUTE.—Ball (*L' Encephale*, Nov. 2, 1882), has recently again called attention to this psychical manifestation. It consists of an uncontrollable and all-pervading sense of *doubt*,—doubt as to the commonest facts and acts of ordinary life and experience. What is seen must also be touched. What has been done must be done again, or some special measure taken to ascertain that it has been thoroughly accomplished. The consciousness which is plagued with this malady seldom rests and is a prey to worry. Locking a door, extinguishing a lighted candle or match, turning off the gas, or in some cases so simple a matter as placing a vase on a pedestal, or even a book on a table, are serious undertakings from which the mind shrinks ; or if the act be hastily and needlessly performed the sufferer endures a misery of misgiving for some time afterward, and, which makes the matter worse, the longer the doubt lasts the more oppressive does it become. All sorts of evils may ensue from his omission to lock that door or drawer, to turn off that gas-burner, or to place some ornament firmly enough on its pedestal. The victim of this malady may go to bed and try to sleep, but he will toss restlessly on his pillow, and at length *must* give in. From any distance or at any pains he returns to find that his fears have been wholly groundless. Ball claims that the French were the first to describe this condition, and that Dr. Berger had ignored the researches of French alienists in describing this condition under the term of Grübelsucht or metaphysical mania. The type as described by Berger covered greater ground than that of the French. The victim of metaphysical mania wonders, for example, why a table has four legs, why it should not have two, and loses himself without control in a host of analogous trivial metaphysical queries. The prognosis, Mortimer Granville to the contrary, notwithstanding, is, as a rule, not very good, as the condition usually occurs in hereditarily defective persons. A variety has been described by Dr. Hammond under the title of mysophobia. As Berger (*Neurologisches Centralblatt*), November 15, 1882, very pertinently says, Ball could scarcely have read his work on Grübelsucht, or he would have found full credit given Falret and other French alienists. From an impartial stand-point, Ball seems to have exhibited a lack of familiarity with psychiatric literature equal to that with which he charges Dr. Berger.

FOLIE À DOUBLE FORME.—Under this title, the one adopted by Baillarger to designate the condition called *folie circulaire* by Falret, who was the first to describe it, and known as circular insanity in the United States, Dr. A. Foville (*Brain*, October, 1882) gives a good résumé of existing knowledge on the subject; although his bibliography is not by any means complete, still he has not ignored American authors, as witness his brief citation of Spitzka, and his reference to the statistics mentioned in the October, 1881, number of the JOURNAL OF NERVOUS AND MENTAL DISEASE. In his opinion, *folie circulaire*, *folie à double forme*, circular insanity, is a psychosis, characterized by a prolonged succession of periods of maniacal excitement and melancholic depression, alternating in a regular manner.

The duration, type, and intensity of the mania and melancholia; the mode of transition from the one to the other, may greatly vary, but their alternate recurrence is constant and pathognomonic. "This psychosis is almost always due to an hereditary predisposition, and is most often incurable." The female sex predominates. In the New York asylums the reverse was the case, but the figures from the female asylum were not reliable. The affection manifests itself most frequently after puberty. The depression is extreme, and is at first in many cases simply deep depression. It may proceed to the extent of stupor. Hallucinations may occur, and depressing delusions, all secondary to the original depression. The maniacal period may be characterized by all the lavish generosity, wild schemes, and unsystematized delusions of the hypomania of Mendel, the subacute mania of asylum reports. Imperative conceptions may occur, taking the form, at times, of sexual perversion. Acute mania with marked motor symptoms may make its appearance. Sexual functions are usually very active. The patient may lose weight during the depressive stage, to regain it during the maniacal stage. The disease does not usually terminate in dementia, and this experience of Foville's was that of the New York City Asylum for the Insane. Foville is not inclined to regard with favor the view that there is a progressive paresis variety of *folie à double forme*. He regards the prognosis as a bad one. Some of his cases are, however, a mixture of *folie à double forme* with *manie raisonnée*. He gives no opinion as to the frequency of the affection. At the New York City Asylum for the Insane (JOURNAL OF NERVOUS AND MENTAL DISEASE, October, 1880) fifty patients out of two thousand two hundred and ninety-seven presented this type. Treatment does not, in Foville's opinion, yield good results. Baillarger claims to have cured one patient by bleeding. Foville says nothing of the different types presented by the alternation. The cases observed at the New York City Asylum presented four types: 1st, with alternating mania, melancholia, mania, melancholia without any free interval; 2d, with mania, melancholia, free interval; 3d, with melancholia, mania, free interval; 4th, with mania, free interval, melancholia, or melancholia, free interval, mania.

FOREIGN BODY IN THE INTESTINES OF THE INSANE.—Dr. Samuel Kohn (*Medical Record*, July 22, 1882) reports the case of a patient suffering from circular insanity, who was removed from the asylum with symptoms of peritonitis; vomiting; pulse, 120; temperature, 102.5° F.; a pale, anxious countenance, etc., with general abdominal pain, but special tenderness over the right iliac region. Such attacks recurred and subsided alternately over a period of five weeks, partial obstruction occurring four times. The patient said she was "rotten inside," and could not possibly live. One day the mother of the patient came to the doctor's office and said that, that morning, in the fæces of the patient, which she had regularly examined, she had found a long, hard, spindle-shaped mass of fæces, encased in glairy mucus. Examination revealed the edges of several spoons protruding from the mass. Softening and breaking it up she found it to contain three teaspoons, which the doctor found to have every appearance of having lain lengthways in the intestine for a long time, the concavity of one fitting into the convexity of another. All abdominal symptoms disappeared. The patient declared that she swallowed them all in one day with the intention of thus ending her existence. Hæmatemesis was not present. This occurred in the similar cases reported in *Gaillard's Medical Journal*, vol. 1, 1880, and Poulet's "Foreign Bodies in Surgery," vol. 1, p. 137. In a case recently reported by Gock (*Allgemeine Zeitschrift für Psychiatrie*, Band xxxix) a silver fork, seventeen centimetres long and weighing fifty-five grammes, was found on autopsy. There were very similar symptoms to those described by Kohn, but no hæmatemesis. In a case reported by Van Andel (*Gazette hebdomadaire de médecine et de chirurgie*, 1866, p. 79) a woman swallowed a silver fork, in imitation of another woman who had done this for suicidal reasons, and who had not recovered from the subsequent gastrotomy. Up till about three hundred and seventeen days after the swallowing, the fork had caused no other symptom than gastric distress. It finally caused a tumor about the size of the fourth month gravid uterus, which opened spontaneously on the left side above the umbilicus, and the fork and fæcal matter were therefrom removed. The case resulted in recovery. Poulet ("Foreign Bodies in Surgery," vol. 1, p. 152) reports a case where a lunatic swallowed an open knife; Hevin ("Memoires"), one where a lunatic swallowed a butcher's steel. Bryant ("Surgery") has had under observation a lunatic who swallowed a piece of iron wire; Tilanus (Didericus, Dissert, "Medico-chirurgica," 1848), a woman who swallowed a fork for suicidal reasons; and a similar case is reported by Chorpy (*Gazette médicale*, 1874). Pilcher (*Lancet*, June, 1866) reports an insane woman who swallowed broken crockery for suicidal reasons. Dr. Uhde reports a case where a chisel was swallowed. The psychical bases for the swallowing of these bodies are two; suicidal attempts and imperative conceptions. The latter are by far the most frequent.

APHASIA IN RELATION TO INSANITY.—The relation of aphasia

to the mental condition of patients has often been discussed from a very positivistic stand-point. Even Ray ("Mental Pathology"), judicial as his mind was, pronounced very dogmatically on this subject in his discussion of the Parish will case. Dr. Rousseau in a recent article (*Annales médico-psychologiques*, November, 1882) comes, after an extended examination, to the following conclusions: First, in general, insanity and aphasia are rarely encountered associated, and the explanation of the phenomenon must vary according to whether the insanity or aphasia be first developed. Second, the lesion resulting in aphasia often leaves the intelligence intact, but more frequently this is enfeebled but not perverted. Third, lucid aphasiacs may, like other people, of course, become insane, but this is not of frequent occurrence. Fourth, as lunatics contract in time a cerebral inertia, true aphasia is not markedly evident with them, but simple loss of language may of course occur. The author has not, it will be obvious, studied the phenomena of aphasia as presented among progressive paretics who are, most likely of all, the insane to be attacked by it.

PUERPERAL INSANITY AND INSANITY OF LACTATION.—Dr. J. De Burgh Griffin (*Australian Medical Journal*, June 15, 1882) states that he has found that puerperal insanity usually assumes the form of acute mania. He claims that a premonitory stage exists, and that the disease may be aborted; in this opinion he is opposed by nearly every authority. Chloral hydrate is of much value. Puerperal insanity, Dr. Griffin finds, has a very good prognosis, and this is in accord with the usual experience; puerperal melancholia may occur, but melancholia is most frequent during the period of lactation. Tonics are of value in it, and artificial feeding is often necessary. Suicidal attempts are to be expected.

INVERSION OF THE SEXUAL SENSE.—Under this title Charcot and Magnan (*Archives de Neurologie*, Nov. 3, 1882) report six cases of imperative conceptions respecting sexual matters, which they consider allied to the sexual perversion of the Germans. The first case was that of a masturbator, a physician, who felt drawn to the anal region of females and *clothed* children for sexual gratification; the naked bodies were repugnant to him. He was disgusted with the idea of pæderasty and sexual intercourse; there was strong heredity in the case. In the second case there was also strong heredity, and the patient felt sexually attracted by the nails of women's shoes, concerning which he constructed elaborate romances and masturbated while gloating over these. The third case also had hereditary defect, and felt sexually attracted by white table-cloths, several of which he stole and was punished for so doing. The fourth patient, also a victim of hereditary defect, was unable to copulate with a woman unless her hair was dressed in a certain way, and she had a night-cap on. The

other cases were victims of nymphomaniacal impulses. There is, it will be obvious, very little in common between these cases and sexual perversion as described by Gock, Servaes, Krüg, Krafft-Ebing, Ulrichs, and others. Dr. Hammond ("Diseases of the Nervous System") has described a case where shoes were the attraction, and Van Buren and Keyes ("Venereal Diseases") a case where a man was impotent except with women dressed in a peculiar style. As might be expected, impulses of this character are very frequent among hebephreniacs.

CONDITION OF PATIENTS ON ADMISSION TO ASYLUMS.—Dr. J. A. Campbell (*Lancet*, July 1, 1882) calls attention to the fact that physicians pay too little attention to the physical condition of patients whom they are about to commit to asylums, and gives a series of cases to illustrate the fact that patients are often brought to asylums in a moribund condition. The necessity for a physical examination of the patient prior to admission, is peculiarly urgent in States requiring jury trials of lunatics.

MEDICO-LEGAL RELATIONS OF INSANITY.—Dr. Ira Russell (*Boston Medical and Surgical Journal*, December 14, 1882), in a discussion of the relations of insanity to law, states he regards Guiteau as being a case of moral insanity. In contradiction of the dictum passed by the New York State Medical Society at the instigation of the Utica "alienist," Dr. Russell states that the first obvious symptom of insanity may sometimes be some moral obliquity. He unfortunately, however, adopts the erroneous change of character theory, but not to such an enormous extent as many of his colleagues. He admits that many cases of insanity can best be treated at home. He very properly claims that the whole mental condition of the individual must be taken into account in judging of the question of responsibility, and that the fact that a single delusion only is demonstrable does not prove that the patient is responsible for an act apparently disconnected with such delusion.

RESPONSIBILITY OF CRIMINAL LUNATICS.—Under this title Dr. S. S. Herrick (*New Orleans Medical Journal*, December, 1882) discusses the relation between the lunatic and society. He is of opinion that Guiteau was justly executed, not as a punishment, but for the protection of society. Guiteau was a lunatic, but the episodes of his trial were such as to lead Dr. Herrick to believe with Folsom (*Boston Medical and Surgical Journal*, May, 1882,) that his escape would have been an encouragement to the criminal class. Dr. Herrick believes that the sentimental cant about the imprisonment of sane men in lunatic asylums has decidedly bad results. The whole article is permeated by a Spartan spirit, and is evidently

modelled on that of Dr. W. A. Hammond (*JOURNAL OF NERVOUS AND MENTAL DISEASE*, January, 1882). The same ideas are expressed in much more decided terms. One point made is, that relatives of insane patients committing crimes should be held responsible, and this is undeniably a good one, but in many States the law, and not relatives, is responsible for the non-incarceration of a lunatic.

GUITEAU'S INSANITY.—Dr. Godding (*Alienist and Neurologist*, October, 1882), in the pleasant style which marks the "Two Hard Cases," details that weird tragedy, the execution of Guiteau, and tells about the desire of the victim to be executed in white robes, from which he was only deterred by the argument that people would regard him as a lunatic.

After an extended review of the testimony and results of autopsy, Dr. Tamassia (*Revista sperimentale di freniatria e di medicina legale*) arrives at the conclusion that Guiteau was a case of primary monomania (primäre Verrücktheit).

Pelman (*Deutsche medicinische Wochenschrift*, No. 37, 1882), after a careful examination of all the literature of the Guiteau case at his disposal, comes to the conclusion that while there is no doubt that Guiteau was a case of marked psychical defect, to bring him under any ordinary clinical form is a matter of some difficulty. At the same time his mental capacity and responsibility were so doubtful that he should never have been executed.

Dr. Denny (*Boston Medical and Surgical Journal*, December 28, 1882), who had approached the question of Guiteau's mental condition from the stand-point of sanity, finally exhausted all arguments in this direction, and has been led by the weight of evidence to believe Guiteau insane. He claims that there was a resemblance between the case of Guiteau and that of Freeman. The way in which both expressed themselves about their sudden conception, and the way in which they struggled against it, were very similar. The deed itself showed insanity.

Dr. J. P. Gray (*American Journal of Insanity*, October, 1882) says concerning Guiteau's death on the scaffold, that it was that of a great criminal, consistent with Guiteau's life. He fiercely arraigns Dr. Hicks for his unchristian conduct in acting as Guiteau's spiritual adviser; says, in effect, that Guiteau should have been gagged on the scaffold before he should have been allowed to read "as his parting message such a compound of reckless blasphemy and senseless puerility." One might be tempted, in the light of the autopsy, to believe that, in Dr. Gray's opinion, "a lie, well stuck to, is as good as the truth." With the memory of Remshaw's attack still fresh, however, it is obvious that since Dr. Gray was unable to recognize the insanity of a chronic lunatic who was in daily association with him, there was a possibility that he might believe that Guiteau was not a lunatic. Dr. Bucknill, afflicted by the phil-Uticaism which has attacked his colleagues of the *Journal of Mental Science* has written a diatribe on the subject of Guiteau which might have been

written by a wildly excited newspaper scribbler. The article assumes (*Brain*, July, 1882) that there is no such thing as a systematized delusion, and in contradicting Dr. Hammond, directly contradicts statements made on p. 248 of Bucknill and Tuke's work. It directly contradicts also the opinions of Crichton Browne, cited approvingly by Dr. Bucknill (*op. cit.*, p. 245). Bad an example of phil-Uticaism as this is, in the next number of *Brain* appears a still worse. Dr. Bucknill actually takes Dr. Luys to task for not making any allusion to the "labors" of "Dr." Deecke, which have been ridiculed at home and abroad. Such an insult to Luys is a painful reflection on the scientific discrimination of Dr. Bucknill. To judge from these two articles one would be led to believe that Dr. Bucknill has forgotten what he himself has written, and has read nothing but the *American Journal of Insanity* for the last ten years. "Dr." Deecke has not written any thing on cerebral anatomy, so there was no possible excuse for Dr. Bucknill's slur on Dr. Luys.

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J. G. KIERNAN, M.D.

d.—THERAPEUTICS OF THE NERVOUS SYSTEM.

NERVE-VIBRATION IN THE TREATMENT OF NERVOUS DISEASES.—The most important of recent contributions to neurological therapeutics, measured by its claims, is that of nerve-vibration. The subject has been before the profession for two years or more,

but the publication of Mortimer Granville's work, with a complete and definite description of methods and perfected instruments, gives it a fresh interest. In 1877 Vigouroux discovered that sonorous vibrations could be made to affect the sensory nerves, producing anæsthesia, and relieving neuralgic and ataxic pains. Charcot suggested then that the action was by the mechanical vibrations acting on a susceptible periphery. Boudet, carrying out the idea further, in 1880, invented an instrument for transmitting the vibrations of a tuning-fork directly to a given point upon the skin. In this way he produced local analgesia, relieved neuralgic pains, and even cut short attacks of migraine. Prior to this Dr. Mortimer Granville had been studying the subject, and in January, 1877, devised a percuteur, which was actually tried upon patients a year later. Since that time he has been steadily occupied with the subject. He has now reached conclusions with which he is sufficiently satisfied to justify him as he thinks in giving the whole matter to the profession.

Dr. Granville's theory is tolerably well known. He believes that nerve-cells and nerve-fibres vibrate in their beds, or sheaths. In certain neuropathies like hysteria, the cells hang loosely, as it were, and vibrate too easily; in neuralgias the vibrations are abnormal in rhythm or frequency. In sclerosis he suggests that the cell atrophy may be prior to the interstitial increase, and that mechanical vibration may exercise the cell and renew its growth again. In neuralgias he believes that by mechanical vibrations the normal harmony of rhythm may often be restored. Mechanical vibrations may also arouse the dormant capacity for vibration in a nerve, and thus relieve or cure paralysis. In the uncoördinated movements of tabes and lateral sclerosis there is thought to be an irritable condition of the nerve centres. By percussing afferent nerves, this excessive irritability is relieved and the movements improved. Dr. Granville has heretofore used a clock-work percuteur; he now states that he has invented one that is moved by electricity, and obtains from it much better results. This he supplements with a variety of hammers, brushes, and discs for varying the force and character of the stroke. Great stress is laid upon carefulness in technique, in regulating the rapidity and force of the vibrations. The percuteur is recommended (1) for the relief of neuralgia and migraine; (2) for the control of disorderly movements, *e. g.*, in chorea, and peripheral spasms; (3) to elicit energy from torpid centres, *e. g.*, in impotence and loss of power in special senses; (4) to allay morbid irritability—this he considers to be best illustrated in the treatment of locomotor ataxia; (5) to relieve cerebral and cerebro-spinal irritation and distress; (6) to improve the vaso-motor state; (7) in neurasthenia; (8) in indigestion, constipation, tension-albuminuria, and pseudo-diabetes. Dr. Granville states his views with great apparent candor and caution, though with considerable repetition and diffuseness. His theoretical explanations appear to us to be crude, contradictory, and most difficult to accept. That good, practical results in some

disturbances are obtained by nerve-vibration can not be doubted, as the tuning-fork vibrator and the clock-work percuteur have been used in this city by several physicians. The very wide range of usefulness asserted for nerve-vibration by Dr. Granville remains to be established. The claims set forth in his book are not yet supported by detailed cases.

ON THE TREATMENT OF INFANTILE PARALYSIS.—Dr. Robert J. Lee calls attention to the very marked value of artificial heat in the treatment of infantile paralysis. This he illustrates by the case of a girl suffering from this disease in a severe form, who received no other treatment than hot sponging night and morning, and artificial heat to the affected limb, after going to bed. This limb was equal in size to the sound one eight years after the attack came on, although still paralyzed below the knee.

Dr. Wm. H. Barlow refers to the fact that artificial heat is an old therapeutic method in the disease in question. He considers it always necessary to protect carefully the paralyzed limbs, but believes that electro-therapy and voluntary and passive movements are much superior remedies to heat.—*Brit. Med. Journal*, Dec. 2 and Dec. 23, 1882.

NEUROTOMY FOR TIC DOULOUREUX.—Mr. William Cadge contends against the view of Anstie that neurotomy is an unscientific procedure and of very little therapeutic value in neuralgia. He reports four cases of tic douloureux in which this measure furnished relief for a considerable time.—*British Medical Journal*, July 15, 1882.

APPARATUS FOR SELF-MASSAGE.—Professor C. A. Augström, of Stockholm, has invented an apparatus for self-massage. It consists of a roller with two adjustable handles so placed that, by grasping one in each hand, the individual can apply the roller to any part of the body.—*Upsala Läkare för Förhandlingar*, Sjuttonde Band, 1882.

ELECTRICAL TREATMENT OF ANGINA PECTORIS.—The evidence for the usefulness of electricity in angina pectoris has been until recently very slight. In late years, however, Eulenberg, V. Hübner, Cordes, Lustig, and a few others have reported successful results from galvanizing the neck. Dr. Lowenfeld also relates a case :

The patient, a man æt. forty-seven, was subject to attacks of the disease, occurring every month or two. These were characterized by excited respiration, oppression ; small, frequent pulse, sternal pain radiating to the left arm, and convulsive tremors of the limbs, and lasted about one hour. The heart was normal. The constant

current was applied for one minute to each side of the neck along the course of the pneumogastric. The sense of oppression was immediately relieved. Ten such applications in the course of three weeks were followed by complete freedom from the attacks for more than two years.—*Aerzt. Intelligenzbl.*, No. 39, 1881.

STRETCHING THE SCIATIC FOR TABES.—A. Podres reports two cases. The first was that of a man, age forty-five, who had suffered from tabes dorsalis for eleven years. After the operation, in which the left sciatic was stretched, the patient was relieved of pain, and there was great improvement in sensibility and motility. The patient remained under observation six months. The second case was that of a man, age thirty-eight, who had suffered from tabes for four years. Both sciatics were stretched. The patient failed to react after the operation. The wound did not heal, bed-sores appeared, and the patient died in one and a half months.—*Wratsch*, 1882, Nos. 38 and 39; *Centralbl. f. Chirurg.*, January 13, 1883.

ANOTHER ELECTRIC BRUSH BATTERY.—Dr. H. Mallory has invented an instrument, which consists of a regular faradic battery, mounted upon a metallic brush. The inventor has found it all-sufficient, and reports cases of sciatica and rheumatism relieved by its application. The strength or mode of generating his current is not described.—*Cincinnati Lancet and Clinic*.

EPIDERMIC USE OF THE OLEATES.—Dr. Squibb recommends the epidermic use of the oleates, on the ground that oleic acid is very rapidly absorbed by the skin. The oleates of aconitia and atropia are two per cent. solutions of these drugs in oleic acid. The oleate of morphia is a five-per-cent. solution. A drop of either of the two former, applied to the skin, very rapidly produces local and constitutional effects. In treating neuralgias with aconite, the oleate is considered to be the best method of administering the drug.—*Squibb's Ephemeris*, 1882.

THE TREATMENT OF SPINAL DISEASES.—Professor Roberts Bartholow, in a lecture upon this subject, divides spinal diseases, for purposes of therapeutical study, into (1) acute inflammatory, (2) chronic inflammatory, and (3) nutritional diseases.

As regards the first class, the use of ergot is deprecated, since it contracts the arterioles, but allows of stasis in the veins, which, in the spinal canal, have a capacity of four times that of the arteries. Instead of ergot, digitalis is recommended, and we are told that it does more to restore the normal balance of the intra-spinal circulation than any other remedy. After digitalis comes aconite, and

then veratrum viride. Opium is indispensable for severe pain, and bromide of potassium to control excessive reflex action. When the stage of arterial and functional excitement is passed, remedies for the absorption of effusion and exudation are indicated. For the former, purgatives and diuretics are thought sufficient; for the more solid exudations, the salts of ammonia, in considerable doses, are recommended.

For the chronic inflammatory troubles (scleroses), the remedies are: hot douches to the spine morning and night, cutaneous faradization half an hour daily, the rubbing and wet pack, Granville's percuteur. Violent rubbing and kneading, says the author, do mischief. Galvanism is recommended by Dr. B. with the descending current. The balance of authority, however, is now in favor of the polar method of electrical application. The author is convinced that the current method of Onimus and Legros is correct, but also "confirms the high estimate" placed by Erb upon his (polar) method.

The internal remedies from which the best results, in scleroses, are obtained, are nitrate of silver and chloride of gold and silver. Many cases of chronic spinal disease are said to be due either to metallic poisoning or syphilis. Iodide of potassium and occasionally mercury are therefore often needed.

In the chronic nutritional disease, senile, etc., cod-liver oil, the phosphates, strychnia, quinine, and electricity must be used.—*Medical News*, December 16, 1882.

ACTION AND USE OF CONVALLARIA.—Dr. J. Troitzky, from experiments on frogs, dogs, and rabbits, concludes: (1) That convallaria stimulates the inhibitory centres in the heart, paralyzes the motor centres, and does not affect the vagus. (2) That it lowers the temperature (in large doses). (3) That it diminishes muscular reflex action.

Therapeutically, it is indicated in valvular diseases of the heart, except where the organ is fatty. On theoretical grounds, it is recommended as a vascular tonic to the nerve centres.—*Wratch*. 15, 1881, u. 18, 40, u. 41, 1882; *Deutsche Mediz.-Zeitung*, January 11, 1883.

Dr. William M. Polk reports a case of vagus neurosis remarkably relieved by convallaria. The patient was a young man of good history and habits, who was subject, periodically, to attacks of palpitation. The heart beat at the rate of 190 to 240 times per minute. The attacks, under digitalis treatment, lasted two or three days. There was no organic disease. Under ten minim doses of fluid extract of convallaria, the heart-action was very rapidly brought down and all bad symptoms dispelled.—*N. Y. Medical Record*, February 2, 1883.

Dr. Isaac Ott reports the results of experiments with convallaria upon rabbits and frogs. He concludes: (1) That convallaria increases arterial tension until very powerful doses have been taken.

- (2) That it at first increases then decreases the frequency of the heart-beat. (3) That the latter effect is not due to stimulation of the cardio-inhibitory centre, but to an effect upon the heart-muscle. (4) That the drug causes clonic spasms.

Dr. Ott's conclusions, practically, are in harmony with those of Troitzky, the latter designating as a local-inhibitory centre that which Dr. Ott refers to the cardiac muscle itself.—*Archives of Medicine*, February, 1883.

THE SLEEP-PRODUCING POWER OF OZONE.—Binz has reported additional experiments with ozone gas as a hypnotic. He made forty-three trials upon twelve persons. In six experiments the results were nil; in the remainder, more or less sleep was produced. The ozone was produced by two of Grove's cells. As it is irritating to the air-passages it was freely mixed with air. The sleep produced was unaccompanied by any disturbance of function. Binz states that ozone brought in contact with brain tissue acts upon it much as do certain narcotics. He recommends the use of ozone in asthma, as its inhalation is accompanied with greater ease in respiration.—*Berlin. klin. Woch.*, No. 43, 1882.

PARALDEHYDE AS A SUBSTITUTE FOR CHLORAL HYDRATE.—Dr. V. Cervello reports the results of his experience with paraldehyde. He claims that this has a hypnotic power equal to that of chloral hydrate, without the disadvantages of the latter drug.

Paraldehyde is a colorless fluid, boiling at 124°C .; sp. grav., at 15°C ., 0.998; it crystallizes when cooled, melting again at 105°C .; it is slightly soluble in water. The formula is $\text{C}_6\text{H}_{12}\text{O}_3$.

As a hypnotic its action is somewhat like chloral; yet in ordinary doses it does not depress the respiratory centres or the heart-action. Paraldehyde acts chiefly upon the cerebral hemispheres, but to a less extent upon the medulla and cord. In large doses it paralyzes the respiratory centres.

The exact dose is not laid down. In some cases one to four grammes were sufficient; in others, 10 grammes were given without disturbance. The drug is best given in syrup solutions containing three per cent. The taste is not unpleasant.—*Archiv f. exp. Path. u. Pharmacolog.*, October, 1882.

[Morselli and Bergesio, at the meeting of the Italian Medical Association, September, 1882, reported upon the use of paraldehyde among the insane. They found it a safe and efficient sedative and hypnotic in cases of mania, etc. The dose used was two to three grammes.]

THE HEADACHE OF ADOLESCENTS.—Charcot has given a clinical picture of the headache which attacks boys between the ages of eleven and sixteen. Aside from rest and general hygienic

management, he recommends hydrotherapy as the most efficient single agent in its treatment.—*Progrès méd.*, No 47, 1882.

THE STIMULATING PROPERTIES OF OATS.—M. A. Sansom has isolated an active principle from the pericarp of oats, which he has found to stimulate the neuro-muscular excitability of horses. He calls the substance *avenine*. It belongs to the group of alkaloids. It exists in varying amounts in the different kinds of oats. The experiments of M. Sansom, in a measure, bear out the statement that there are medicinal properties in tincture of *avena sativa*.—*L'union médical*, Jan. 6, 1883.

CAUTERIZATION OF THE CLITORIS IN THE TREATMENT OF HYSTERIA.—Dr. N. Friedreich believes, with Baker Brown, that many cases of hysteria are caused by masturbation. Further, he is of opinion that in neuropathic females an over-sensitiveness of the sexual organs may exist, which acts upon the spinal and cerebral centres, causing hysterical symptoms, without there being actual, voluntary masturbation. He treats these cases by cauterizing the clitoris. The operation is most painful, but the results are so remarkable and agreeable that the patients, says Dr. F., never object to a repetition. Eight cases are reported, and all were ultimately cured. In two cases there were relapses, and the cauterization was repeated. In three other cases the cauterization had to be repeated. The disease was in all instances very marked, there being paralyses, general convulsions, hysterio-epilepsy, etc.—*Virchow's Archiv*, Bd. xc, p. 220.

RECENT CASES OF NERVE-STRETCHING FOR SCIATICA.—Dr. J. G. Carpenter, of Stanford, Ky., reports the case of a man, aged fifty-seven, with inherited rheumatic diathesis. He had had rheumatism since 1852, and sciatica in the right limb every winter since 1875. All forms of local and general treatment having failed, the nerve was stretched March 14, 1882. The neurilemma was found to be thickened, congested, and attached strongly to surrounding tissues. The nerve was pulled upon until it was about two inches longer than at first. The wound healed well, but there was paresis of the bladder for a few days. The extensor proprius pollicis, extensor longus digitorum, tibialis anticus, and peroneal muscles were completely paralyzed by the nerve-stretching, and they did not all regain power until the following September. The patient was "hysterical and neurasthenic" for two months after the operation, but the relief of pain was immediate and complete.—*St. Louis Medical and Surgical Journal*, Jan. 1883.

Dr. Macleod has published a case of obstinate sciatica which had resisted all ordinary remedies, including blisters and the

actual cautery, acupuncture, galvanism, etc., which was cured by stretching the sciatic nerve. There was some loss of power in the leg, which was at first considerable, but on the whole the improvement was great, as there was no return of the pain.—*Glasgow Med. Journal*, Nov., 1882.

Dr. C. A. Wheaton reports the case of a farmer who had suffered for six months from a most severe sciatica, that had been unsuccessfully submitted to almost every variety of treatment. The lower half of the thigh and leg was much atrophied, and his general condition was bad. It was decided to perform the operation of nerve-stretching, which has succeeded so finely in many cases. The operation was performed in the usual manner; the nerve was found swollen, injected, and much less dense than normal; the stretching was made with a good deal of force, but no "sensation as of something giving way" was felt. The patient rallied well from the anæsthesia, but in two hours after the operation was suffering as much pain as before. He suffered constantly for about thirteen hours, when he became suddenly unconscious and died without a struggle.—*Trans. Minn. State Med. Assoc.*, 1882.

Isenschmidt reports a very successful case of nerve-stretching for sciatica of two years' standing. The patient was an old man. The operation was performed in Nussbaum's clinic and by Nussbaum himself.—*Deutsche Mediz.-Zeitung*, Jan. 26, 1883.

GELSEMINUM IN TETANUS.—Dr. John B. Read reports the case of a strong, healthy mulatto woman, twenty years of age, who was suffering from tetanus, due to a bit of glass embedded in the heel. The fluid extract of gelseminum was given in twenty-minim doses every two hours, alternating with the same quantity of liquor potassæ. On the second day there was some improvement. Convulsions returning, however, the dose was increased to forty minims. Improvement was continuous, and complete cure resulted. No toxic symptoms developed.—*Brit. Med. Journal*, Dec. 23, 1882.

CHLORAL IN TETANUS.—Nicaïsne reports the case of a man, aged thirty-seven, suffering from tetanus. From Sept. 25th to Oct. 3d he received between four and six grammes of chloral daily. The patient got well. Nicaïsne thinks that treatment should begin with small doses of chloral, gradually increasing until toxic symptoms appear.—*Progrès méd.*, 1882, No. 41.

THE TREATMENT OF TABES DORSALIS.—In a paper read before the Society of German Naturalists and Physicians, and subsequently published in the *Berliner klin. Wochenschrift*, Eulenberg discusses the subject of the treatment of tabes dorsalis. He believes that the disease is sometimes practically cured. Among

300 cases treated by himself, three had recovered and had remained well up to date of writing (five to seven years). These cases had been treated chiefly by nitrate of silver, by galvanotherapy, and hydrotherapy, alone or combined. Eulenberg explained the fact that some cases do not respond at all to nitrate of silver, by supposing that that salt was not absorbed. He therefore had used hypodermically a more soluble preparation.

[In the debate which followed Eulenberg's paper, Senator spoke highly of silver nitrate, but thought it only caused temporary improvement. Its action was better among hospital than among private patients, because the former were made to take it more regularly, and had more muscular rest.

Dr. V. Mering, of Strasburg, suggested the glycocholate of silver as a suitable soluble preparation.]—*Debatte auf der Naturforscherverversammlung zu Eisenach*, 1882.

Leyden discusses the therapeutics of tabes from a very sceptical stand-point, calling attention to the fact that no single remedy is uniformly successful even in palliating the disease. The best results follow careful regulation of diet and habits, with hydrotherapy.—*Separat-Abdruck aus der Real-Encyclopädie*, Wein u. Leipzig, 1883.

F. Schultze reports a case of tabes with a classical history. The symptoms disappeared under the use of nitrate of silver and galvanotherapy. The patient remained practically well for twelve years. He then died through an accident. Post-mortem showed the lesions of tabes still present.—*Archiv f. Psych. u. Nervenk.*, xii, 1.

SMALL DOSES FREQUENTLY REPEATED.—Dr. A. A. Smith gives a summary of the effects of certain remedies administered in small doses frequently repeated. In trigeminal neuralgia, croton chloral gr. i every half hour; in migraine, citrate of caffeine gr. i every half hour; in neuralgias about the face or head, tincture of gelsemium ℥i every half hour; in sick headache, not of neurotic origin, tincture of nux vomica ℥i every ten minutes. Small doses of the bromides are also recommended for the nervous disturbances of children.—*New York Medical Journal*, Feb. 10, 1883.

EXPERIMENTS WITH CERTAIN AGENTS IN THE TREATMENT OF EPILEPSY.—Dr. Paul Bricon has made a series of experiments at Bicêtre regarding the effect of certain therapeutic measures in the treatment of epilepsy. These measures were hydrotherapy, arsenic compounds, magnetism, and pilocarpine.

Among fifty-four epileptic patients to whom hydrotherapy was applied, ten were decidedly improved, seventeen slightly improved, the rest were not affected. Among seventeen of those improved, there was no other treatment.

The bromide of arsenic was used inten-centi gramme doses, but with very poor result. Ten patients were treated with it, and only one was improved by it alone.

Daily applications of very large magnets were made upon sixteen patients. The applications were continued for from three to six months. No physiological or therapeutical effects were produced.

The nitrate and hydrochlorate of pilocarpine were tried, in .005 to .05 doses, upon fourteen patients. Seven were improved. Dr. Bricon thinks that only hydrotherapy and the salts of pilocarpine gave sufficiently good results to justify further trial.—*Thèse de Paris*, 1882.

SUBSTITUTES FOR DIGITALINE: HELLEBORËIN.—Schmiedeberg, in an article upon the digitalis group, enumerates six classes and nineteen different active principles which have more or less of the physiological properties of digitalis. Helleborëin is placed in the group of crystallizable glucosides along with digitaline. It is preferred to digitaline by Schmiedeberg, because of its greater solubility and more rapid absorption and probable elimination. It is obtained from the roots of *Helleborus niger*, *virid.*, and *fatidus*. It is manufactured by Merck, but has as yet been little used.—*Archiv f. exper. Patholog. u. Pharmakolog.*, Bd. xvi, Heft iv.

ADONIS VERNALIS.—The active principle of this plant has been obtained by Cervello and experimented upon. He found its action to be similar to that of digitaline, but that the dose required was much smaller. In rabbits and dogs the blood-pressure always rises under its influence. He does not appear to have tried its effects on human beings.—*Med. Press and Circular*, Dec. 27, 1882.
C. L. DANA, M.D.

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THE
Journal
OF
Nervous and Mental Disease.

Original Articles.

PERVERTED SEXUAL INSTINCT.

(CONTRARE SEXUALEMPFINDUNG: WESTPHAL. INVERSIONE DELL' INSTINTO
SESSUALE: ARRIGO TAMASSIA. INVERSION DU SENS GENITAL:
CHARCOT ET MAGNAN.)

BY DR. J. C. SHAW, BROOKLYN, N. Y.

AND

DR. G. N. FERRIS,

FIRST ASSISTANT PHYSICIAN, KINGS COUNTY ASYLUM.

UNDER the above titles there have been published from time to time a number of clinical cases concerning a most interesting pathological sexual phenomenon. Our attention was recently called to this subject by a patient afflicted with these abnormal desires who presented himself to Dr. Shaw for treatment. Upon looking up the literature of the subject, we find the majority of the cases have been reported in German journals, two cases in French, one in Italian, but one in English, and no cases that we are aware of have been published in America. Therefore, as the most of this material is rather inaccessible, and thinking that perhaps many like ourselves derive more information from a well-reported clinical case than from abstract theories, we have taken the liberty to present condensed histories of all cases thus far reported, following as nearly as possible the language of the various authors.

There is abundant proof that such cases were recognized by the ancients, and that they exist among uncivilized as well as civilized races. Casper,¹ so famous in German medical jurisprudence, mentions cases of this perverted instinct, but we pass them by, as he viewed them more from a legal than a medical stand-point.

The sole contributor to the literature of the subject on the part of the laity, is a Hanoverian lawyer, Carl Heinrich Ulrichs, himself one of these unfortunates, who about the middle of the '60's wrote anonymously, but later under his right name. He defended their perverted desires, gave to such men the name of "Urnings," supposed that a woman's soul dwelt in a man's body ("anima muliebris in virili corpore inclusa"), claimed their love to be physiological, though abnormal, and demanded that the law recognize marriage between Urnings.²

In an excellent address delivered at the opening of the summer term of the psychiatric clinic at Berlin (1868), Prof. Griesinger,³ considered psychiatry in its application to criminal questions. That he was acquainted with and rightly appreciated such cases as we are about to review, would seem evident from the following remarks: "One is led to peculiar considerations of many revolting aberrations which disgust healthy moral feelings, when we hear an honest, cultured man of good social standing, but with a bad hereditary history however, confess that since his eighth year he has experienced a sexual desire toward his own sex, but has never experienced normal, healthy sexual desire." Such individuals he considers neuropathic through some organic brain defect.

Prof. C. Westphal⁴ was the first to consider our subject

¹ Casper's Vierteljahrschrift, 1852. Casper's Handbuch, 1858, p. 173.

² Vindex, Inclusa, Vindicta, Formatrix, Arasped, Gladius furens, Kritische Pfeile, Leipzig, 1864-80.

³ Archiv f. Psychiatrie, Band i, p. 657.

⁴ Archiv f. Psychiatrie, Band ii, pp. 73-103.

from a scientific stand-point, give to it the name, "*Conträre Sexualempfindung*," and define it as a congenital perversion of the sexual instinct, with a consciousness of the morbidity of the condition. In 1869 he published two very complete clinical cases, of which we proceed to give abstracts:

CASE I.—Miss N., thirty-five years old, housekeeper in a young ladies' boarding-school, which was conducted by her sister. This sister stated that patient learned with difficulty at school, was somewhat melancholy, and very discontented with herself. Many of her peculiarities had been overlooked on account of her physical defect, a cleft palate. Latterly her condition had changed. She became more melancholy and apathetic, grew quite passionate, threw things about, and used improper language. These attacks recurred at regular intervals. Complained of circumscribed headaches, as if "knives were sticking into her." Six days before her removal to Berlin Charité, was found by her sister weeping violently. Said she was dreadfully in love with a young girl, was very unhappy, and could no longer remain in the school. Was in this condition several days, would eat nothing, finally became so excited and threatening that she was sent to the Charité.

When examined by Prof. Westphal, exhibited no marked peculiarities. Was astonished that she had been brought to an asylum, as her mind was not affected. Related then and subsequently, that as a child she was particularly fond of boys' games, and liked to dress as a boy. Since her eighth year had a liking for young girls—not all, but certain ones. Made love to them, kissed them, embraced them, at times succeeded in touching their genitals. From her eighteenth to twenty-third year had frequent opportunity to gratify her desire, and although she felt of the girls' private parts, she would never allow herself to be touched. When these opportunities were denied her, she would masturbate, especially just before and after the menses, while picturing to her imagination some beloved maiden. She had tried to conquer the habit, but when she forcibly suppressed the desire, she declared that she experienced at once a disgusting smell and taste, arising from her external genitals. Had never felt at all interested in men, and they did not excite her in the least. In her voluptuous dreams she appeared to herself to be a man. This desire for her own sex appeared frightful to her, and she wished to be free from it. Physically she did not appear to deviate from the female type.

Genital organs were normal. Father of patient made debts by gambling, became melancholy, and committed suicide.

During her two months' sojourn in the hospital, patient menstruated regularly. Was found several times embracing a weak-minded patient, and when the latter left the Charité, was very much grieved. No delusions or hallucinations, but a certain mental weakness.

Five years later, Dr. Westphal looked patient up. Found she had been doing well, had had no further affairs with girls, admitted that she still often masturbated at the menstrual epoch, while thinking of the loved girl. Still had a great desire to be a man. Also told the doctor that since she was grown she had at times felt compelled to look fixedly at a certain object or place until her eyes hurt her. Could not control this impulse. Was at such times very much depressed, following a condition of periodical excitement at the menstrual epoch.

Westphal's second case differs widely from the first in many respects, and is capable of a different interpretation. It is that of a man who was arrested for dressing in female clothing.

CASE 2.—A strong, well-nourished man, twenty-seven years old, of good stature and muscular development; had regularly-formed features, slightly effeminate; hair blonde, long, and curly. Although smoothly shaven, usual evidences of a beard. Body quite hairy; genital organs well-developed; larynx quite prominent; voice soft and peculiar, but hardly that of a woman. At the examination patient blushes and trembles all over, a condition often noticed subsequently. Complained of having convulsions and fainting fits. Confessed a great liking for wearing woman's clothing; had had this liking since his eighth year, and had often been punished by his mother for taking her clothing. This desire increased as he grew older. He took pleasure in associating with women, dressed as a woman, bought himself all sorts of female ornaments. When he tried to repress the desire he was very uneasy until he had gratified it. Had occasional sexual intercourse with women, but never with men, although they had often solicited it from him. Had masturbated as a lad. Had his first fit when sixteen years of age, and they had recurred since at irregular intervals. Was easily made angry, at

times melancholic, could not bear spirituous liquors. Seems to have skilfully played the part of a woman, and found many admirers among men, whom he succeeded in deceiving. To gratify this perverse desire, he stole female apparel on several occasions, for which he was arrested and sent each time to the penitentiary. Once he was much pleased at a sentence for five years, as he hoped in that time to conquer this desire, which he recognized as morbid. During his stay at the hospital, patient occupied himself with female handiwork—knitted, embroidered, and made ladies' hats. Usually quiet, reticent, somewhat foolish, at times very angry from a slight cause. Although some doubt was entertained about his fits, yet they seemed too real to be simulated, and were probably hystero-epileptic.

In commenting on the first case, Westphal remarks that the girl seemed quite analogous to the Urnings described by other authors. He calls attention to the fact that these unfortunates claim to be bound together by a sort of magnetism, recognize one another, are worried about their perverted instinct; also, to the periodicity of the attacks, the headaches, depressed condition, limited mental capacity, appearance of morbid phenomenon in eighth year (both cases), hereditary taint, etc. In the second case the question arose whether the man did not assume female attire to mask his deceptions and carry out his thefts. Still, from all the evidence, too lengthy to reproduce here, Westphal considers his condition decidedly pathological—a sort of moral insanity. He concludes that the phenomenon of perverted sexual instinct is congenital, and symptomatic of a neuro-pathic condition, and that it is the task of future observations to determine whether such a condition can occur as an isolated phenomenon without any other pathological symptoms. He expressly declares that he does not consider all individuals given to unnatural lusts as pathological, but just as there are pathological thefts and murders, so there are also pathological conditions of the sexual passions.

Dr. Schmincke,¹ in 1872, published a good clinical history of a case without any comments.

CASE 3.—A young man of respectable family in good circumstances, somewhat spoiled, well educated, very witty, unusually musical, suffered, in consequence of rapid growth, from spinal irritation. Was one day suddenly seized with a twitching of one of his legs, then his arm began to twitch, finally the other side; these convulsive movements recurred from time to time, and were more or less violent; lasted at times for days, often only for a few hours. Had to give up business, was treated by water-cure, finally recovered. Went to Paris, there had an attack of gastric fever, was brought home in a weak condition, gradually improved physically, but was in a deplorable mental condition. Thought he was damned for all eternity; wished for death, but feared it, as he could not go to heaven. Would foretell the day of his death, and when he did not die on the day, said God had pity on him, but the devil would finally triumph. At last told the doctor the cause of his despair. He had never touched a woman, but had looked at handsome young men with pleasure. It was his chief delight to watch vigorous young men bathing; would watch them for some time, and noticed that his penis became moist. It was strange that in looking at a pretty girl on the street he would have an erection and slight emission. He liked to read obscene books, and in doing so enjoyed a slight emission. Had never masturbated. Said he had a real dislike for girls, and had never desired to cohabit with them, but had often longed to have intercourse with young men, which, however, he never had had. On account of this affection for men, he considered himself a complete reprobate. Was melancholy, would not associate with others, but after a long time, by dint of coaxing, associated with his former friends. Finally went out in society, was very popular on account of his wit, but had had no intercourse with women, nor had he an inclination to marry, although in a position to do so.

In 1873 Dr. Scholz² reports a case which is incomplete in many details, and consists chiefly in a morbid confession. The morbid sexual desire is here less pronounced, but the character, occupation, and mode of thinking womanly.

¹ *Archiv f. Psychiatrie*, Band iii, pp. 225-226.

² *Vierteljahrschrift f. Gerichtl. Med.*, Bd. xix, pp. 321-328.

CASE 4.—Patient when thirty years of age was treated by Scholz for gastric difficulties ; at that time seemed mentally normal. Married shortly afterward, and when seen again, three years later, was suffering from carbonic dioxide poisoning, the result of a suicidal attempt ; then confessed the curse resting upon him ; said he had always been successful in suppressing any manifestation of his unnatural desire ; had never had intercourse with man, but had frequently masturbated. Married in the hope of curing himself, but his disgust for carnal intercourse with woman was unconquerable, and since marriage he had only twice performed coitus. His sexual organs were completely normal ; he was not impotent, but there was a lack of sexual desire ; was well educated and amiable. He wrote out his confession, which he desired Scholz to publish. In this confession he fully recognizes his abnormal condition, which is his constant thought, and deprives life of all pleasure ; feels himself more of a woman than a man ; has a woman's soul, a woman's endurance ; would love to kiss, wash, dress, and care for children, and it would afford him the greatest happiness could he be a mother. Once at a wedding was costumed as a lady ; felt happy in the part, and played it so naturally that a stranger fell in love with him ; has a continual desire to act, speak, sing, and walk like a woman ; with effort had acquired some male characteristics ; thinks that perhaps both natures are latent in man, and that the womanly in him was especially developed through his early education by his aunts. Throughout the lengthy confession there are morbid, melancholy, somewhat philosophical thoughts which we omit.

Two years later, in 1875, we find a very excellent case contributed by Gock.¹

CASE. 5.—A Jewish servant-girl, twenty-eight years old, went of her own free will to an asylum ; said she felt sick and miserable, and wished to die. She had a great passion for a female friend ; recognized the same as abnormal, but could not repress it ; wished to be helped. Patient's mother died of consumption, and in her later years had been quite demented. No further hereditary history obtained. As a child she was careless, mischievous ; did not learn readily ; played almost exclusively with boys ; menstruated at twelve and a half years irregularly, profusely, and with pain. About this time experienced a preference for girls, par-

¹ *Archiv f. Psychiatrie*, Bd. v, pp. 564-574.

ticular ones who attracted her by the expression of their eyes ; followed the chosen ones all over ; blushed when she spoke to them ; was jealous when they spoke to others ; when she kissed them, experienced a voluptuous sensation in her genital organs. This desire occurred shortly before and after the menses ; when masturbating, thought of the loved girl. As she grew older, was shown some attention by men ; had offers of marriage, but she would have nothing to do with them ; was not interested in men, and at times experienced a real disgust for them. But her love for girls increased in intensity ; was not content to kiss and hug them, but wished to sleep with them and handle their sexual organs. When resisted by them she became very much excited ; finally recognized the fact that they did not feel as she did, and began to think she was sick ; neglected her work ; would stand still gazing in one direction ; became very unhappy ; attempted to drown herself. The suppression of her desire made her finally so unhappy that medical advice was sought. Physically, patient corresponded to the female type : breasts well developed, genital organs quite normal, uterus in normal position ; some asymmetry of the face. Patient complains of headache, dizziness, backache, pain in pit of stomach, and loss of sleep and appetite. In the institution was restless, depressed, worked but little ; fell in love with a nurse and a childish patient ; wished to embrace them and sleep with them ; menstruated twice without trouble ; improved very much ; went home ; did fairly well after another short exacerbation during which she attempted to drown herself.

Gock calls attention to the hereditary history, the congenital mental defect, and the periodicity of the symptoms, and is inclined to view the disease more as psychopathic, than as a disease of the central nervous system.

The next case was published in 1876, by Servaes.¹

CASE 6.—Franz E., arrested in Nov., '71, while making improper advances to a night watchman. His mental condition being doubtful, he was sent to the asylum for observation. His history was obtained exclusively from himself. Was thirty-five years of age. His mother was a weak, bigoted woman.

Patient was large, of a good, bony frame, fair muscular development, hair blonde, beard rather thin. Face had a peculiar, sly,

¹*Archiv f. Psychiatrie*, Bd. vi, pp. 484, 495.

lustful expression. In his ninth year first made the acquaintance of the "food of life" (semen) through the tutor of a friend, who taught him pæderasty. Since then continued the habit. Invited the doctor to sleep with him, and, when taken to task, defended his position. Said sexual intercourse with men was the highest happiness on earth to him. Semen was the true food of life, of which he could never get enough. Misinterpreted Scripture to sustain his position. Had an unconquerable hatred toward women, and had never slept with them. Believed in marriage between men; could easily find one to marry him. Said: "I have often found people whom, at a glance, I saw by their eyes that they belonged to me. I never offered myself in vain to such people."

Patient remained in asylum fifteen months, and exhibited the type of a *folie circulaire*: a state of exaltation from eight to fourteen days, then a short period of melancholic depression, and then an interval of comparatively normal mental action. When in this latter state recognized his unfortunate condition. Would do no work, but made fancy little mats, confessing a liking for female occupation. Had two epileptiform attacks. Developed phthisis, became weaker, had delusions of poisoning and persecution, finally died.

In the same volume of the *Archives*, Westphal¹ publishes another case without making any comments.

CASE 7.—A well-educated young man, twenty-four years of age, of excellent character, during an acute attack of melancholia confessed his perverted desires toward his own sex to his physician. When seen a few days later by Westphal, all traces of his melancholy had disappeared. Recognized his sexual desire as perverted, and wished to be cured of it. Besides the moral torture which this consciousness subjected him to, he was a little hypochondriacal, felt unable to work, disliked to associate with people.

No epileptoid attacks or hereditary history, but his mother is said to have been somewhat excitable. The abnormal impulse dated from his eighth year, but patient had never made any sexual advances toward men. Had never touched a woman, and felt sexually quite indifferent toward them. After some months patient had resumed work, and was feeling morally improved.

¹*Archiv f. Psychiatrie*. Bd. vi, pp. 620, 621.

M. Legrand du Saulle,¹ while commenting before the Société Medico-Psychologique, in 1876, upon the physical manifestations of reasoning mania (*folie raisonnante*), cites a case which comes under this subject.

CASE 8.—A young man of twenty years, student, of cultured mind, cold, distant, contemplative, misanthropic, loving solitude. Had a marked repulsion for woman and every thing that concerns her. Felt attracted by men, and by pictures or statues representing nude men; possessed anatomical plates of the male genital organs, and always endeavored to see the penis of any man whom he saw urinating. Was finally arrested in a urinal, where he and an old man were mutually displaying their private parts. Was the son of an hysterical mother; had phimosis and a slight stricture. Unfortunately he was only seen once, and a more complete history was not obtained.

At the tenth convention of the alienists of Southwestern Germany, in 1876, Dr. Stark² considered the subject of perverted sexual instinct, reviewed the first five cases we have mentioned, and reported four more cases, the third of which has been generally rejected as not belonging to this category. We here give the three accepted cases, short abstracts of whose histories only were published.

CASE 9.—A middle-aged man. Strong hereditary taint. No sexual desire. However, after puberty occasional indulgence in coitus "on account of his health," but with no corresponding normal feeling of gratification, which he attributed to his constant fear of infection. Disposition changeable without good cause; at times happy and hopeful, at others depressed and irritable. Constant constipation, headache, irregular sleep. Was induced to practise mutual onanism with men; experienced great pleasure and has been addicted to the vice for years. Later, developed melancholia with hallucinations. Partial recovery, but persistence of his habitual psychical abnormalities. A pampered, effeminate being; capricious. Periodic change of disposition. Soft voice, morbid blushing.

¹ *Annales médico-psychologiques*, May, 1876, tome xiv, p. 446.

² *Allg. Zeitschr. für Psychiatrie*, Band xxxiii, pp. 209-216.

CASE 10.—Man of middle age. Two paternal uncles insane. Mentally not well endowed. From youth has exhibited the peculiarities of moral insanity : excessive passion (attacked his father with a knife), loss of self-control, want of family love, no feelings of honor or shame, no endurance or energy. Before his ninth year, onanism. Since his ninth year, sexual desire toward men, and sexual gratification with them, but never per anum. Dislike toward women, and a feeling that he has no sympathy for them. At times realizes his abnormal condition, and has tried to cure himself by having intercourse with women, but always returned to the old vice. Periodic drinker. Tall, strong man. Small skull, occiput but slightly developed. Voice soft ; he blushes easily. Patient states such individuals recognize one another by certain not unusual expressions, such as "large firm," "to travel steerage," "to press." Besides the peculiar look mentioned by Casper, he gives, among other signs of recognition, a circular movement of the index finger over the genitals, a dancing walk, and not smoking. Patient has accustomed himself to smoking, that he might not be so readily recognized by others.

CASE 11.—An elderly gentleman with an hereditary taint. An emotional nature, somewhat melancholy as a young man, and later three well-defined attacks of melancholia, each time following fright at a fire. Complete want of normal sexual desire since youth. Has never touched a woman, and the thought of one fills him with disgust. Has a liking for beautiful boys and men, whom, however, he has never known sexually. Has a sweet, womanly presence, a soft voice, and blushes easily.

Stark calls particular attention to the hereditary taint, the psychopathic constitution, the soft voice, and morbid blushing. Sexual abnormalities usually appear in such people, and it is not in harmony with science to suppose that this perversion could occur as an isolated phenomenon. Thinks this perversion somewhat analogous to hysteria, and, like the latter, must be regarded as a manifestation of disease of the central nervous system.

Krafft Ebing,¹ in 1877, while writing upon the various abnormalities of sexual life from a more comprehensive

¹ *Archiv f. Psychiatrie*, Bd. vii., pp. 305-312.

stand-point, reviews in one of his subdivisions perverted sexual instincts, mentions the cases published up to that time, reports a case, and enters into a careful analytical study of this phenomenon. We will give some of his conclusions later, but first cite his case.

CASE 12.—K., official, 25 years old, single. Father, hypochondriachal; mother, psychopathic. In his seventh year, typhus. From the age of fourteen years, onanism; not by friction of the member, but by kneading the skin of the scrotum between the fingers. At eighteen years was gloomy, of a depressed disposition which became habitual. No desire for the opposite sex, but ardent, although platonic, love for his comrades and little boys. Frequent emissions at night, during which sexual dreams about a comrade. In January, '76, pulsating feeling in his veins, every heart-beat accompanied by a "flowing out" from the scrotum toward the heart. Palpitation. In October, exacerbation of this neuropathic condition. Patient smelled chloroform, which he thought the sign of a solution of his semen. Various abnormal sensations all over his body. Features and attitude distorted. Right side of face smaller than left. Left testicle has an abnormally large auxiliary testicle.

The next contribution to this subject came from Italy. Prof. Arrigo Tamassia,¹ after a short review of the preceding literature, publishes a very carefully observed case.

CASE 13.—P. C., son of peasants. Father not exactly insane, but what is vulgarly called "nervous," unstable, changeable, passionate, eccentric. The mother was semi-hysterical, easily provoked, alternated between extreme loquacity and obstinate silence. One of her brothers was half-idiotic, the other peculiar like herself. Patient did not profit much from his early schooling; had an aversion to study; was religious, superstitious, credulous. Left school at twelve years of age. His retiring character became more pronounced, fled his companions, remained in the house and devoted himself to domestic occupations. Between his fifteenth and seventeenth years frequented female society with great pleasure. With them he felt in his element, was interested in their gossipings, their petty intrigues, etc., while with men he seemed

¹ *Revista speriment. di freniatria*, 1878, pp. 97-117.

disturbed as if in a hostile atmosphere. In these conversations with women he never made the slightest allusion to sexual matters, and any ambiguous remarks called forth a display of modesty on his part. During this time let his hair grow long, and tried to give his clothing a female appearance. Once said he was not a man, and often used the pronoun "we" when speaking of women. Between his nineteenth and twentieth year an officer for whom he had worked, suggested in fun that he dress as a woman as he could easily pass for one. This ironical remark decided for him the internal strife already begun. He was seized with an irresistible desire to make people believe him a woman. He let his hair grow long, put on female clothing, and continued to wear it in spite of much ridicule; associated with women, and even claimed to have been delivered of a son. Wore female apparel about six months, and then resumed male clothing. Said he still preserved his sex, but dressed as a man to escape violence and to obtain work. Still, in secret took great pleasure in dressing as a woman. His male garments had an effeminate look; he wore his hair long, parted in the middle, and secured by a small comb. For several years worked as a servant, preferring womanly occupations, such as cooking, washing, etc. Avoided the noisy company of his companion servants, and occupied his leisure time with female handiwork.

Related long stories about his love affairs with men and his pretended child, but would never enter into details, and energetically opposed any examination of his sexual organs. His intellect was of a low order, his resources limited, had no original views, did his work automatically, was fond of details, became troubled at the slightest difficulty, as a woman would. Was not intemperate. Inordinately vain, was especially fond of being complimented on his female appearance. Had no affection for parents, fatherland, or friends. Committed two slight thefts, for the latter of which he was put in prison, where he was examined by Dr. Tamassia. Was thirty-three years of age, of medium height, robust. Head evidently brachycephalic, covered with long, glossy, black hair. Forehead low. Face carefully shaven, but evidences of an abundant beard. Larynx prominent. Voice weak, of somewhat falsetto tone and singing cadence. Genital organs are those of a man of his age, without any congenital or acquired abnormality. Anus shows no signs of passive pæderasty. Was very reticent about his sexual functions, but it would seem that he had been with women, and also masturbated, although generally his organs

were in a state of torpor. Never made any advances to the women he associated with. Was very indignant at being examined, and would not answer the doctor's questions about what he thought of himself.

Tamassia considers the possibility of this being an assumed rôle to ingratiate himself in the favor of women and thus find opportunity to steal, but from very good reasons concludes this is not the case, and that this individual felt an unconquerable instinctive desire to dress as a woman and to be one.

The first case of this kind which we find reported in English, was published in *Brain*, for 1881, by Dr. Julius Krueg,¹ of Vienna. However, his case was that of a German, and cannot be considered as a contribution to the study of this subject by English science. Patient consulted Dr. Krueg, to see if medicine could assist him in the conflict he was waging against himself.

CASE 14.—Herr N., belonged to a neuropathic family; his mother was hysterical, a sister similarly affected, and a brother shot himself. When six years of age the sight of naked men in a bath gave him peculiar pleasure. From nine to fourteen years was nervous, the result of a fright, and was sent into the country on account of his delicate health. Learned the practice of onanism from his school-fellows. At this time conceived an extravagant fondness for one of his "friends," in which, at last, sexual desire and jealousy came to play the same part that they ordinarily do in love affairs. Found no pleasure in the sports of his comrades. Later, devoted himself successfully to millinery; ladies' bonnets were his particular specialty, and he possessed singular taste in designing new shapes and trimmings. Was thirty-three years of age, in good pecuniary circumstances, had no desire to marry or have children. Had an insuperable abhorrence of sexual connection with women. Continued to practise onanism alone and with other men. Confirmed the statement made by others that individuals affected with this abnormality are able to recognize one another. His imagination would dwell on the male sex only,

¹ *Brain*, vol. iv, No. 3, pp. 368-376.

although he did all that he could to direct it to the opposite sex. Men appeared to him in his dreams ; had resolved to leave off all intercourse with men, but since the resolve had experienced a constantly increasing mental irritation, as he could not gratify his stronger sexual appetite. Complained of various nervous sensations, had inherited the fear which his mother had of any thing pointed, such as pins. At times lost the power of controlling his thoughts, was unable to banish certain ideas (*Zwangvorstellung*). For instance, during the mass for his dead brother, was compelled to think of a combination of the Host and the anus of a dog, a horrifying thought to a believing Catholic like himself. Patient was of medium size, with normal genital organs, a sparing growth of beard carefully shaven, affected in dress and demeanor ; speech and gestures theatrical.

In an excellent article also published in 1881, Krafft Ebing¹ considers perverted sexual instincts from a clinical forensic stand-point, and makes an addition of three cases to the clinical record.

CASE 15.—Count Z., thirty-seven years, single. Father insane ; mother apoplectic ; nine brothers and sisters apparently healthy. Was rachitic as a child ; developed slowly up to his tenth year. Had been given to onanism since his eleventh year ; at thirteen years symptoms of neurasthenia ; always quiet, retiring, eccentric, emotional, and impressionable. As a child played with dolls, did not like boys' games. In his eleventh year felt fascinated by a man in church ; when thirteen years old fell in love with an old man, who did not return his love. Became jealous ; wept ; tried to satisfy his longings by masturbation. Later had many male loves, was filled with ecstasy when having sexual intercourse with them, thought other men must have similar thoughts when embracing a woman. Found particular æsthetic enjoyment in looking at beautiful statues and pictures of men ; never cared for women ; danced rarely, and regretted that he could not dance with men. When twenty years old forced himself to have connection with a prostitute ; could not succeed, and since then has detested all sexual relations to women. Did not recognize his condition as abnormal ; felt himself morally elevated and happy after intercourse with men ; regretted that social limits stood in his

¹ *Allgem. Zeitschr. f. Psychiatrie*, vol. xxxviii, parts 2 and 3, pp. 211-227.

way ; felt as a woman toward men ; thought his pelvis shaped as a woman's, that he had ovaries as well as male genitals. Only certain young and handsome men were sympathetic to him ; he despised paederasty ; an embrace alone sufficed to cause a seminal emission, but he experienced increased pleasure if he could handle the genitals of the other. Patient was a tall, well-built man, with normally-developed sexual organs ; of manly voice and carriage. None of his friends had suspected his secret. Mental attainments good ; character open and noble ; wrote poems whose manly, vigorous language did not reveal a womanly nature.

CASE 16.—Dr. G., a literary man and teacher, fifty years old, tall, strong ; expression cynical ; manner lustful ; eye has a neuropathic expression ; voice manly ; beard luxuriant ; genitals well-formed, testicles perhaps a little small. Father periodically insane ; mother very eccentric, and her sister was insane. Had scrofula ; suffered from congestions and some spinal irritation, but was usually in good health. Even when five years of age it had been his greatest pleasure to look at a penis ; masturbated before puberty ; at puberty had an intense desire to kiss other young men. When twenty years old had sexual dealings with men, toward whom he felt himself a woman. Even when a boy it had given him great pleasure to dress in girl's clothing ; always had a horror of women ; thinks men of his character poetically gifted natures ; considers as such Voltaire, Frederick the Great, Eugene of Savoy, Platen, and many of the present day. Recognized his sexual relations as abnormal, but not pathological or unjustifiable. For himself and fellow-Urnings there was nothing left but this unnatural love, which was higher and more ideal than abstract love. It was no vice, since they were driven to it by a natural power. Many of his peculiar views, his false philosophy, his ethical defects, his Bohemian life, his eccentric manner, led Krafft Ebing to consider him partially insane (*originär verrückt*).

CASE 17.—Herr von N., thirty years old, single. Mother neuropathic. Physical development tardy ; constitution neuropathic ; despised boys' games and preferred to play with dolls. Later, patient developed bodily and enjoyed good health. After seventeen years of age and afterward, frequent pollutions weakened patient, and induced symptoms of neurasthenia spinalis ; denies onanism, but its practice highly probable ; unable to do any thing for himself ; dependent ; did not appreciate the value of money ; wasted it ; was, in fact, an overgrown child ; could learn nothing well ; spent his time at his toilet and making artistic

trifles ; had some talent for painting, but not endurance enough to succeed at it ; complete want of good sense ; feels toward men as if he were a woman, and feels indifferent toward women ; claims to have had intercourse with women, but it gave him no satisfaction ; has desire toward the male sex, and confessed especial friendship for certain men ; denies having entered into sexual relations with men, but his blushes and a former unsuccessful attempt betray him. His whole external appearance is effeminate. Medium height ; thorax and pelvis of decidedly female shape ; hair on his face very sparse ; high-pitched voice ; bashful manners ; traces of rouge and powder on his face, and a peculiar manner of dressing, give him a very effeminate appearance. The genital organs are well formed, but the left testicle has never descended. Occupation and thoughts decidedly feminine ; had his toilet-table, where he would beautify himself for hours ; loved to talk about poetry, æsthetics, fashions, needle-work, and cooking. Complained of frequent headaches, pressure, weariness, pain in the extremities and back.

The second case which we find in French is more complete than the first, and was reported by MM. Charcot and Magnan¹ in 1882.

CASE 18.—At six years of age, patient had a great desire to see naked boys and men, a desire easily gratified, as his parents lived near soldiers' barracks. When eight years of age saw a soldier masturbating ; imitated him and experienced pleasure ; continued this habit, and after puberty, became so erethitic that the mere thought of the male member provoked an emission of semen. Ceased masturbating at the age of twenty years ; felt attracted by young, handsome, strong men ; desired to please them, and show them the many little attentions usually shown to a young lady ; had never given way to these desires, but still could not control his imagination ; had never experienced a desire for pæderasty, either active or passive, but it sufficed his voluptuousness to look at the genital organs of a man ; had not the slightest desire toward women, even though he had tried to love one. Adored female toilet ; experienced great pleasure in dressing as a woman at the carnival ; played with dolls up to the age of twenty-two years ; had very good taste in judging of ladies' toilets. Physically, this man, thirty-one years old, was tall, well

¹ *Archives de neurologie*, vol. iii, pp. 53-60.

built; regular head, intelligent face; had a heavy mustache; was manly in walk and behavior; penis and testicles well formed; was cultured, learned, studious; after hard study had attained the position of professor; was fond of art and music, and of a most amiable disposition. Great disproportion in the age of his parents, father forty-nine years and mother eighteen years when they married. His mother was over-religious, yet at the same time fond of dress and grand ceremonies. Maternal grandfather was peculiar, and maternal great-grandmother very eccentric. In early boyhood committed numerous petty thefts. Since the age of fifteen years, has had epileptiform convulsions of greater and less severity, and occurring irregularly. Later, patient succeeded in substituting after many attempts, the image of a woman for that of a man in his imagination, and had normal connections with women; but still his unnatural desire would recur at times.

As far as we have been able to ascertain, no further cases have since been published. We therefore conclude with our case, which came under observation twice in the spring of 1880. The patient has not been seen since; in fact, was so reserved that it has been impossible to find him again.

CASE 19.—A German, aged thirty-five years. Height, about five feet four inches. Weight, about one hundred and forty pounds. Black hair. Dark complexion. Well built. Physiognomy of an intelligent expression. Very reticent on some points of his history. Says he is engaged in mercantile business and occupies a good position. For some time past has had an almost uncontrollable desire to embrace men. Fears that some time this horrible morbid desire may overcome him and he will really embrace some of his fellow-clerks. When in the presence of men, he is tormented by constant erections of his penis and a desire to embrace the men. He regards his desire as abnormal, and laments his condition. Remarks that he is ashamed to tell the doctor of his condition, as he must consider him a horrible creature, and look upon him with disgust. Has never given way to his desires, but is afraid that they will overcome him some day and make known his unnatural condition. He has tried to overcome this morbid state by having connection with women, but intercourse with them gave him no pleasure, and he was obliged to force himself to it, and has only tried it on three occasions.

Examination of genital organs shows them to be well developed. At the time of examination penis is in full erection, and this the patient says is the condition of the organ whenever he is near men. He denies nervous disease in his family. Patient is an intelligent man, and perfectly natural in his appearance and manner, except that he is distressed by his abnormal state, and wishes medicine to overcome it. Would disclose neither his name, residence, or family history.

The above abstracts furnish us with a very varied and interesting clinical picture of this curious sexual phenomenon. It seems to exist in all classes of society, to manifest itself in some as a mere yearning to belong to the opposite sex, and in others as a most debasing passion. Some of these unfortunates boldly defend their perverted desires, while others are in agonizing dread lest their friends discover their unfortunate condition. The distinguishing features of this phenomenon are so clearly analyzed and arranged by Krafft Ebing¹ that we cannot refrain from quoting them in conclusion, and thus once more glance over the subject:

a. Congenital absence of sexual feeling toward the opposite sex, at times even disgust of sexual intercourse.

b. This defect occurs in a physically completely differentiated sexual type and normal development of the sexual organs.

c. Absence of the psychical qualities corresponding to the anatomical sexual type, but the feelings, thoughts, and actions of a perverted sexual instinct.

d. Abnormally early appearance of sexual desire.

e. Painful consciousness of the perverted sexual desire.

f. Sexual desire toward the same sex.

g. The sexual desire remains purely platonic or finds gratification in mutual onanism, or in feeling of the object of the affections. Often there is self-pollution, but for the want of something better.

¹ *Archiv f. Psychiatrie*, vii, p. 306.

h. There are symptoms of a morbid excitability of the sexual desires, together with an irritable weakness of the nervous symptoms, so that sensuous feelings, magnetic sensations, and even pollutions occur in simply touching the object of the affections.

i. The perverse sexual impulse is abnormally intense and rules all thought and sensation. The love of such individuals is excessive even to adoration, and is often followed by sorrow, melancholy, and jealousy.

j. People afflicted with this abnormality frequently possess an instinctive power to recognize one another.

THE OPTIC THALAMUS.*

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CITY OF NEW YORK.

THE fibres of the "tegmentum cruris" are connected with the following ganglia: the "*optic thalamus*"; the "*corpus quadrigeminum*"; the "*corpus mamillare*"; the "*pineal gland*" (conarium); and a *ganglion embedded in the crural sling*. The two ganglia first named have a connection with the optic tract, in addition to a connection with the spinal cord. For this reason, the "*corpora geniculata*" may be considered as an appendage to them.

Let us consider, before the other ganglia are touched upon, the peculiarities in arrangement of the optic thalamus and its probable functions.

This ganglion appears, at first glance, to present its gray matter, exposed and uncovered, as a lining to the third ventricle. In this region, a band of white fibres, the "*stratum zonale*," defines its limits and separates it from the tail-like projection of the corpus striatum. When the gray lining of the ventricle is examined, however, it becomes evident that it is structurally independent of the optic thalamus, because it can be traced as a direct continuation of the central tubular gray matter. It is in reality foreign to

* A lecture delivered before the students of the Medical Department of the University of the City of New York.

the thalamus. It will be described, in detail, later in the course.

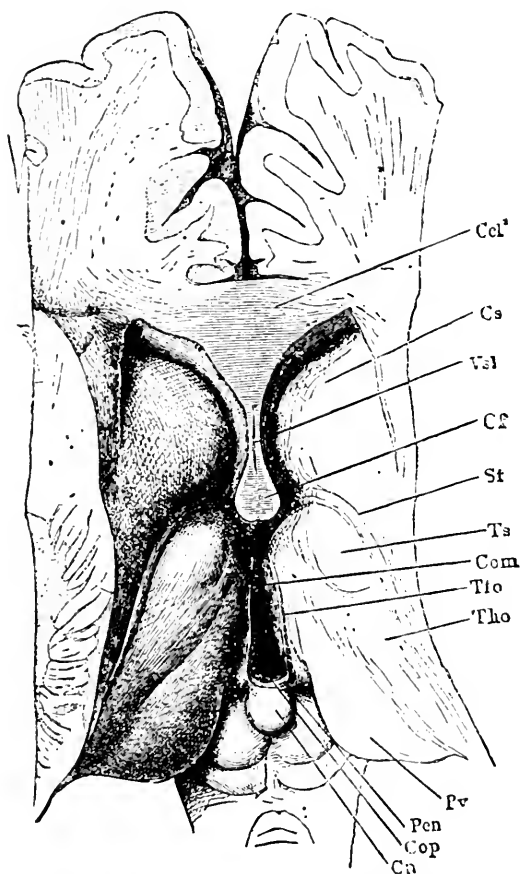


FIG. 1.—VIEW FROM ABOVE OF THE THIRD VENTRICLE AND A PART OF THE LATERAL VENTRICLES. (Henne.) The brain has been sliced horizontally, immediately below the corpus callosum, and the fornix and velum interpositum have been removed. *Tho*, thalamus opticus; *Ts*, its anterior tubercle; *Pv*, pulvinar; *Com*, middle commissure stretching between the two optic thalami across the middle of the third ventricle; *Cf*, columns of the fornix; *Ca*, pineal gland projecting downward and backward between the superior corpora quadrigemina; *St*, stria terminalis; *Cs*, nucleus caudatus of the corpus striatum; *Vsl*, ventricle of the septum lucidum; *Cel*, section of the genu of the corpus callosum; *Pen*, commencement of the pineal stria or peduncle, *Tfo*; *Cop*, posterior commissure.

The optic thalamus, as well as the corpus quadrigeminum, is poorly developed in the human brain, when compared with that of the lower animals. In shape, it has been compared by Meynert to "an arch surrounding a transverse

axis"; in which respect it bears an analogy to the caudate nucleus of the corpus striatum, and the general arrangement of the cerebral lobes. The axes, around which the thalamus appears to arch, comprise the brachia of the corpus quadrigeminum and the corpus geniculatum internum. The greatest breadth of the thalamus lies posterior to the axis; the greatest thickness is found just in front of the axis; and, at its anterior extremity, the breadth and thickness attain their minimum.

If the fornix and velum interpositum be removed and the optic thalami viewed from above, they appear as oval-shaped masses of gray substance covered superficially by a thin layer of white fibres. A longitudinal groove may be detected on the superior surface of each, which inclines slightly inward so that its anterior extremity approaches the mesial plane. It terminates before the anterior extremity of the thalamus is reached. This groove is caused by the thickened margin of the fornix, which extends over the surface of the thalamus along the line of the groove. The anterior part of the thalamus is raised into a prominence, the so-called "*anterior tubercle*," which projects into the lateral ventricle and is covered with the epithelial lining of that cavity. It lies above a part of the lenticular nucleus, as may be seen in all cross-sections of the cerebrum.¹ At the posterior and inner part of the thalamus, is seen, as in front, a posterior prominence or tubercle, the "*pulvinar*." This projects over, and partly conceals, the brachia of the corpus quadrigeminum. Below and external to the pulvinar, another well-marked eminence, the "*outer geniculate body*," may be seen, which lies external to, and above the "*inner geniculate body*." These two eminences are separated by one of the roots of the optic tract (upper brachium). The

¹ The anterior tubercle is farther removed from the level of the base of the cerebrum than any other part of the thalamus.

optic tract arises from this brachium and the two geniculate bodies, and curves downward and forward around the crus cerebri.

Such being the general direction and shape of the thalamus, we are prepared to consider the arrangement of the fibres which are connected with it. It presents, in the first place, three blunt pedicles, which become united with some of the fibres of the superior projection system (*corona radiata*). Those fibres which become ultimately united with these blunt processes, may be traced to the cortex of the frontal lobe, and that of the walls of the Sylvian fossa, and of the temporal sphenoidal lobe. The ganglion is also in intimate relation with fibres which radiate to the cortex of the occipital and parietal lobes.

The external and inferior surfaces of the thalamus are not free, but are united by means of fibres with other parts of the brain. The external surface lies in close relation with fibres of the "crusta," which pass between the lenticular nucleus and the thalamus—those forming the "internal capsule" of the cerebrum. The inferior surface is in relation with the crus; and, more anteriorly, the corpus albicans and the tuber cinereum lie below it.

The *outlines of the surfaces* of the thalamus and the lenticular nucleus of the corpus striatum, as seen in all cross-sections of the cerebrum, may be roughly compared to the form of a square whose two halves are defined by a diagonal band, the "internal capsule,"¹ running from the upper and outer corner to the lower and inner corner. These halves correspond to the respective ganglia. It may be worthy of remark, in this connection, that the surface of the thalamus which lies in contact with the internal capsule of the cerebrum marks the central or receiving pole for the

¹ This bundle of fibres ceases with the posterior limits of the *lenticular nucleus* of the corpus striatum.

fibres which join it with the cortex of the cerebral lobes. This is not the case with the lenticular nucleus, as has been stated in a previous lecture.¹



FIG. 2.—SECTION ACROSS THE OPTIC THALAMUS AND CORPUS STRIATUM IN THE REGION OF THE MIDDLE COMMISSURE. (Schäfer after a preparation by Mr. S. G. Shattuck.) Natural size. *th.*, thalamus; *a.*, *e.*, *i.*, its anterior, external, and internal nuclei respectively; *w.*, its latticed layer; *m.c.*, middle commissure; above and below it is the cavity of the third ventricle; *c.c.*, corpus callosum; *f.*, fornix, separated from the third ventricle and thalamus by the velum interpositum. In the middle of this are seen the two veins of Galen and the choroid plexuses of the third ventricle; and at its edges the choroid plexuses of the lateral ventricles; *t.s.*, tænia semicircularis; *cr.*, forward prolongation of the crura passing laterally into the internal capsule, *i.c.*; *s.t.r.*, subthalamic prolongation of the tegmentum, consisting of (1) the dorsal layer, (2) the zona incerta, and (3) the corpus subthalamicum; *s.n.*, substantia nigra; *n.c.*, nucleus caudatus of the corpus striatum; *n.l.*, nucleus lenticularis; *e.c.*, external capsule; *cl.*, claustrum; *I.*, Island of Reil.

The *external surface* of the thalamus (which lies in contact with the internal capsule of the cerebrum) presents a peculiar appearance, which has given it the name of "latticed layer" (Kölliker). All along this surface, radiating fibres pass out of the thalamus to become intermingled with the fibres of the internal capsule, and to be distributed to the cerebral cortex. Those from the front of the ganglion pass to the frontal lobe; those from the middle are distributed to the posterior part of the frontal and to the parietal and temporo-sphenoidal lobes; those from the posterior part can be traced to the temporo-sphenoidal and occipital lobes. From the region of the pulvinar, or posterior tubercle, fibres can be traced into the optic tract.

¹ "The Corpus Striatum," JOURNAL OF NERVOUS AND MENTAL DISEASE, Jan., 1883.

The *lower surface* of the thalamus is continuous, posteriorly, with the fibres of tegmentum cruris (the *sub-thalamic tegmental region*); in front, however, this prolongation of fibres inclines to the outer side of the ganglion and becomes lost in a layer of gray matter seen in the floor of the ventricle, which corresponds to the anterior perforated lamina of the base of the brain.

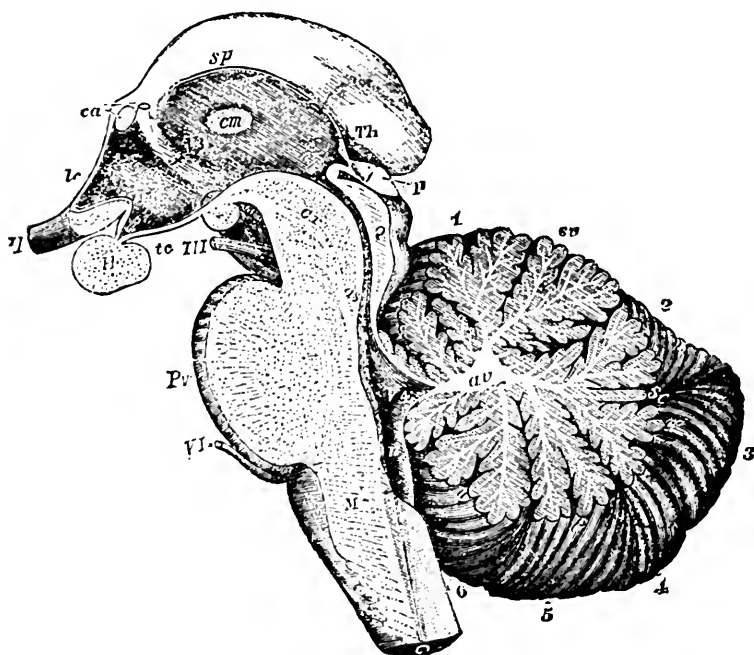


FIG. 3.—RIGHT HALF OF THE ENCEPHALIC PEDUNCLE AND CEREBELLUM AS SEEN FROM THE INSIDE OF A MEDIAN SECTION. (Allen Thomson after Reichert.) II, right optic nerve; behind it the optic commissure divided; III, right third nerve; VI, sixth nerve; V³, third ventricle; TH, back part of the thalamus opticus; H, section of the pituitary body; p, pineal gland; below its stalk is the posterior commissure; ca, anterior commissure divided, and behind it the divided anterior pillar of the fornix; lc, lamina cinerea; i, infundibulum (cavity); tc, tuber cinereum; behind it the corpus albicans; /, mark of the anterior pillar of the fornix descending in the wall of the third ventricle; cm, commissura mollis; sp, stria pinealis, or peduncle of pineal gland; Q, lamina quadrigemina; as, aqueduct of Sylvius near the fourth ventricle; cr, crus cerebri; Pv, pons varolii; M, medulla oblongata; and behind these the cerebellum.

The lower surface of the thalamus is itself prolonged, anteriorly, into a tract of fibres which run downward and outward into the white substance of the cerebral hemi-

sphere, forming the so-called "*lower peduncle of the thalamus*."¹ A bundle of fibres, the "*ansa lenticularis*," passes underneath the thalamus and above the lower peduncle of that ganglion from the mesial part of the crusta to the lenticular nucleus. Between these two tracts of fibres gray matter is interposed; the three, collectively considered, being called the "*substantia innominata of Reil*."

The substance of the thalamus consists of nerve-fibres and nerve-cells, variously disposed; but the exact arrangement of each, and the connections of the nerve-cells with special fibres, is a subject for much future investigation. Many of the theories advanced will be discussed later.

The thalami approach each other very closely in the median line; and, slightly forward of the middle of the third ventricle, are actually joined by a band of gray matter, the so-called "*middle*" or "*soft commissure*" of the thalamus (see fig. 1). This is sometimes double, and occasionally is absent. It is often torn across in removing the brain. This connecting band is composed entirely of gray matter. Not more than one half of the actual antero-posterior measurement of the thalamus is exposed in the third ventricle. It must be noted that the anterior tubercle appears in the lateral ventricle; and that the pulvinar, or posterior tubercle, lies in a plane posterior to that which would intersect the corpora quadrigemina. Note also that the anterior commissure of the third ventricle does not connect the optic thalami, or have any structural relation with them. The posterior commissure is a continuation of the commissural fibres of the fillet (*lemniscus*), which pass through the substance of the optic thalami and diverge in the cerebral hemispheres. These fibres may, in part, act as commissural fibres between the thalami.

¹ Meynert claims that these fibres arise from the cortex of the fossa of Sylvius and the temporo-sphenoidal lobe.

The nerve-fibres, which may be enumerated as intimately associated with the structures of the thalamus, can be divided into sets, as follows:

1. Fibres of the *superior projection system*, which serve to unite the thalamus with the cortex of the frontal, parietal, occipital, and temporo-sphenoidal lobes, and the fossa of Sylvius.

2. Certain fibres which can be traced directly into the *optic tract*, thus proving some functional relationship between the thalamus and the retina.

3. Fibres of the *tegmentum cruris*, which connect the thalamus with the sensory tract of the spinal cord. As stated in a previous lecture, these are to be classed as fibres of the middle projection system (Meynert).

4. It is claimed by Luys that the *anterior tubercle* of the thalamus can be proved to be directly connected with special fibres which lead to regions of the cortex functionally related with the *olfactory sense*.

5. There is strong clinical evidence to be adduced in support of the view that the *sense of hearing* is, in some imperfectly understood way, connected with the thalamus.

Efforts have been made by some of the later anatomists, who have specially investigated the brain, to subdivide the gray matter of the thalamus into circumscribed masses or nuclei, and to trace the fibres which appear to arise from these nuclei to special regions of the brain and spinal cord. Among the most attractive of these attempts may be mentioned that of Luys, whose views will be subsequently given in detail. Whether clinical research and physiological experiment will confirm all of these attractive theories, and place them upon a ground as worthy of credence as the deductions of Broca and Ferrier regarding the functional attributes of other parts of the brain, time alone can decide.

According to the researches of Luys, four isolated ganglions may be demonstrated in the thalamus. Arnold, in common with some other anatomists, has recognized three of these, and the fourth is now added by the author quoted. This author states that these ganglia are arranged in an antero-posterior plane, and form successive tuberosities upon the thalamus, giving that body the appearance of a conglomerate gland.

The anterior ganglion (corpus album subrotundum) is especially prominent. It appears to be developed in animals in proportion to the acuteness of the sense of smell. By means of the "tænia semicircularis," this ganglion (according to the author) may be shown, in the human species, to be connected with the roots of the olfactory nerve. Respecting it he says: "Direct anatomical examination shows that there are intimate connections between the anterior centre and the peripheral olfactory apparatus. On the other hand, in confirmation of this, in the animal species, in which the olfactory apparatus is very much developed, this ganglion itself is proportionally very well marked. Analogy has thus led us to conclude that this ganglion is in direct connection with the olfactory impressions, and that this marks it as the point of concentration toward which they converge before being radiated toward the cortical periphery."

The *second or middle centre* is in apparent continuity with the fibres of the optic tract. It may therefore be considered, on the same grounds as those previously quoted respecting the anterior centre, as a seat of condensation and radiation of visual impressions.¹ There seem to be undisputable grounds for the belief that the geniculate bodies, the corpora quadrigemina, and the angular gyrus of the

¹ Luys states that it is scarcely visible in those animals (the mole as an example) where the optic nerves are rudimentary.

parietal lobe are, in some way, also associated with the perceptions afforded by the retina. Possibly, moreover, the occipital lobes may be added to the ones previously mentioned, since physiological experiment tends toward that view. Ritti has pointed out that irritation of the thalamus may play an important part in the development of hallucinations. We know that extirpation of the eye is followed by more or less complete atrophy of the outer geniculate body of the opposite side, although the inner geniculate body seems to remain unaffected. The experiments of Longet, who destroyed the optic thalami upon both sides without being able to note any impairment of vision or influence upon the movements of the pupil; and those of Lussana and Lemoigne, who found that blindness of the opposite eye followed unilateral destruction of the thalamus, may suggest the possibility, in the former, of the escape of this centre and, in the latter, its destruction. It is difficult to devise any experiment which will positively settle the bearings of the thalamus upon vision; because it is almost impossible to destroy special portions with accuracy, or if this were ensured, to avoid injury to adjacent structures. Fournié claims to have effected the separate annihilation of the special senses of smell and vision by injections made into different parts of the thalamus of animals; and his experiments, if subsequently verified, will tend to confirm some of the theories advanced by Luys.

The *third centre* ("median ganglion" of Luys) is described as about the size of a pea, and situated mathematically in the exact centre of the thalamus. To it the discoverer ascribes the function of presiding over and condensing all *sensory impressions*.

The *fourth posterior centre* is stated to act as a halting place and condenser of *auditory impressions*. Two instances

where the brains of deaf-mutes were found to present a localized lesion of this centre are reported by Luys.

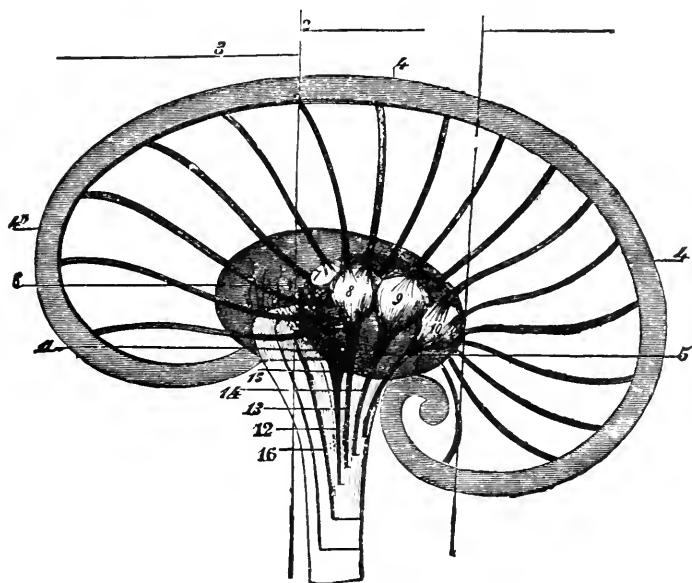


FIG. 4.—A DIAGRAM OF THE NUCLEI OF THE OPTIC THALAMUS AND THE CONVERGING FIBRES ASSOCIATED WITH THEM. (Luys) 1, Converging fibres of posterior convolutions; 2, Same, of middle convolutions; 3, Same, of posterior convolutions; 4, 4', 4'', Cortical periphery as related to the central gray masses; 5, Optic thalamus; 6, Corpus striatum; 7, Anterior (olfactory) centre; 8, Middle (optic) centre; 9, Median (sensitive) centre; 10, Posterior (acoustic) centre; 11, Central gray region; 12, Ascending gray fibres of visceral innervation; 13, Gray optic fibres; 14, Ascending sensitive fibres; 15, Ascending acoustic fibres; 16, Series of antero-lateral fibres of the spinal axis going to be lost in the corpus striatum.

The views here expressed are quoted on account of their originality; and the author of them ranks high as an authority upon the subject of which he speaks. The numerous cases of cerebral hemorrhage which have been reported, where the thalamus was apparently the seat of localized injury, are too often accompanied with a clinical history which points toward pressure upon the internal capsule to be of value as confirmatory evidence of the existence of special centres in the thalamus. The effort of Luys to adduce cases of hemianæsthesia in support of his views regarding the function of the "median centre" of

the thalamus, merely because a lesion of that ganglion was found in an area defined by him as the normal limits of that special centre, must not be deemed conclusive; because the same effect *might* have been produced by pressure upon the *posterior third* of the internal capsule of the cerebrum. There is every reason to hope and possibly to believe that sooner or later isolated ganglia within the optic thalamus will be demonstrated to exist by normal and pathological anatomy as well as by physiological experiment; but the conclusions even of so prominent an author should not be fully accepted without further testimony to substantiate their accuracy.

Some interesting cases have, however, already been brought forward, which certainly seem to sustain the views advanced. A case reported by Hunter,¹ where a young woman successively lost the senses of smell, sight, sensation, and hearing, and who gradually sank, remaining a stranger to all external impressions, disclosed at the autopsy a fungus hæmatodes which had gradually destroyed the optic thalamus of each side, and the optic thalami alone, if the drawing given is reliable. Again, Fournié's experiments on living animals point strongly to the existence of localized centres in the thalamus. Three instances of unilateral destruction of smell, observed by Voisin and reported by Luys, have been found to be associated with a destruction of the anterior centre of the thalamus. A hemorrhagic effusion into the thalamus, on a level with the soft commissure (the situation of the optic centre of Luys'), produced (in the experience of Serres) a sudden loss of sight in both eyes. Ritti's paper upon the effects of irritation of the thalamus upon the development of hallucinations, lends strength to the view that that ganglion in some way regulates the transmission of sensory impressions of all kinds to

¹ Medico-chirg. Trans., London, 1825, vol. xiii.

the cerebral cortex; and confirms the opinion that "the optic thalami are to be regarded as intermediary regions which are interposed between the purely reflex phenomena of the spinal cord and the activities of psychical life."

The view taken by Lussana and Lemoigne, that the optic thalami contained motor centres in animals for the lateral movements of the forelimbs of the opposite side, seems to be completely overthrown by pathological statistics in the human race. The results obtained by these experimenters are also at variance with the belief, which has now become general among neurologists, that the thalami are intimately connected with the sensory tracts of the cerebrum and cord; since they concluded that no evidence of pain or any loss of sensibility resulted from injury to these bodies.

The effects of all experiments on animals, however, agree entirely with the general experience of pathologists, that lesions of both the thalamus and corpus striatum produce results upon the opposite side of the body; whether the symptoms produced point to a disturbance of the kinesodic (motor) or æsthesodic (sensory) tracts. The view originally advanced by Carpenter and Todd, that the thalami are concerned in the upward transmission and elaboration of sensory impulses, in contradistinction to the corpora striata, which are concerned in the downward transmission and elaboration of motor impulses, seems to be gaining ground, and many facts may be urged in its favor.

When the cerebrum is removed from some animals, the frog in particular, the basal ganglia being left intact, and some outward excitation be afterward used to induce movement in the animal so mutilated, there is every indication *that the animal can see*, because it avoids objects placed before the eyes, in case they tend to obstruct its passage.¹

¹ Such an animal will even try to avoid *strong shadows* thrown by the sunlight across its path.

Its movements are those of an entire frog, except that they require some external stimulus to call them forth. It can be made to crawl, jump, croak, swim, and perform all other acts of an automatic machine. It is the effect of light upon its movements, however, that has some bearing upon the existence of a *visual centre* within the substance of the thalamus, since no observer has ever demonstrated that the corpus striatum is related either anatomically or physiologically with that sense.

THE CENTRAL TUBULAR GRAY MATTER.

The prolongation of the gray matter of the spinal cord, which lines the third ventricle, is best described in connection with the thalamus, although it is structurally independent of that ganglion. The following parts have been definitely made out :

1. The *inferior optic ganglion*. This mass of gray matter is situated at the lateral border of the tuber cinereum. Meynert and Luys describe it as forming an integral part of the tuber cinereum, although Wagner considers it as a part of the anterior perforated lamina. It presents a distinct sickle-shaped outline on longitudinal sections, the concavity of which looks forward. Luys thinks that the two ganglia join in the median line, and that the fibres of the optic nerve decussate within them. The opinion of Meynert is directly opposed to this view. This author advances, moreover, some anatomical grounds for the belief that the fibres of the optic tract really belong to the superior projection system (analogous to the "radiating fibres" of the cerebrum); that the inferior optic ganglion is to be regarded as the peripheral extremity of these fibres; and, finally, he suggests that in some undiscovered way the fibres will probably be traced later to some nucleus of the central tubular gray matter intimately connected with some other part

of the body, perhaps the muscles of the eye. If this view be accepted, the superimposed layers of the retina must be considered as analogous to those found in the cortex cerebri.

2. Within the tuber cinereum, behind the inferior optic ganglion, *commissural fibres* which turn backward within the central tubular gray matter may be demonstrated. The termination of these fibres is, as yet, unsettled.

3. The *posterior longitudinal fasciculus* of the tegmentum cruris may be traced along the central tubular gray matter of the third ventricle, the aqueduct of Sylvius, and the fourth ventricle. It terminates centrally in the broad, thin ganglion within the "substantia innominata of Reil."¹

From this ganglion fibres may be traced into the "external capsule" of the cerebrum, the cortex of the operculum, the fossa of Sylvius, the island of Reil, the claustrum, and cortex of the temporo-sphenoidal lobe. The greater mass of the posterior longitudinal fasciculus of the tegmentum lies to the outer side of the anterior pillar of the fornix, but a few fibres from the "infundibulum" pass across the inner side of the pillar.

4. The *descending branch* of the *anterior pillar of the fornix* lies within the central tubular gray matter of the third ventricle. The *ascending branch* is also similarly embedded before it enters the body of the thalamus, and the same may be said of the *upper part of the corpus candicans* (mamillary tubercle). Luys, Arnold, and Meckel believe that the descending branch of the crus of the fornix becomes fused with the stria cornea, and the habenula conarii. The crus of the fornix makes a remarkable twist upon itself, the loop of which forms the corpus candicans (mamillary tubercle), when it reaches the base of the brain, and returns to enter the substance of the thalamus (bundle of Vicq d' Azyr).²

¹ The reader is referred to a previous page.

² Forel and Gudden deny that the fibres of the anterior pillars of the fornix are directly continuous with those of the bundle of Vicq d' Azyr.

It must not be inferred, however, that the corpus candicans consists only of fibres of the fornix, doubled upon themselves ; as nerve-cells are abundant within it, some of which are in intimate relation with the fibres of the crus fornicis.

It will be apparent to you all, after what has been said, that the lining of the third ventricle represents a prolonga-

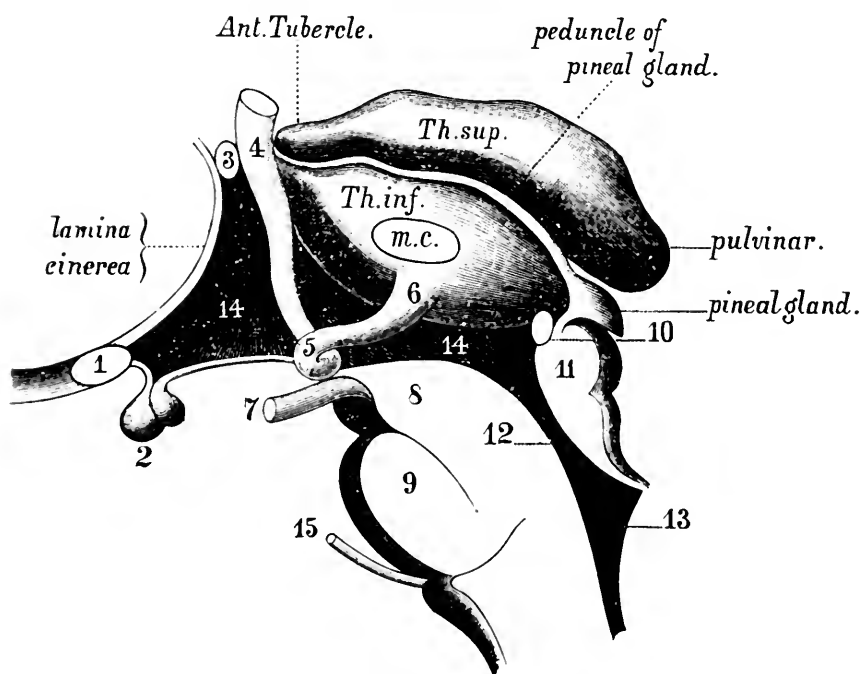


FIG. 5.—A DIAGRAM OF THE INNER SURFACE OF THE OPTIC THALAMUS, WITH THE TUBULAR GRAY MATTER REMOVED, SHOWING THE THIRD VENTRICLE, AND THE ARRANGEMENT OF NEIGHBORING PARTS. *Th. sup.*, superior part of thalamus; *Th. inf.*, inferior part of same; *m. c.*, middle commissure; 1, section of optic commissure; 2, infundibulum and pituitary body; 3, anterior commissure of third ventricle; 4, anterior crus of fornix; 5, corpus candicans (mamillary tubercle); 6, bundle of Vieq d' Azyr; 7, the third nerve; 8, crus cerebri; 9, pons Varolii; 10, posterior commissure; 11, corpora quadrigemina; 12, aqueduct of Sylvius; 13, fourth ventricle; 14, third ventricle. This cut should be compared with Fig. 3, in which the gray lining of the ventricle is intact.

tion of the gray substance of the spinal cord into the brain. By Luys it is considered as connected with fibres embedded both within it and the thalamus, which concentrate themselves around certain nodal points, among which he men-

tions the "gray protuberances of the septum, for the olfactory roots; those of the tuber cinereum, for the optic fibres; the mamillary tubercles and pineal gland, for the connecting fibres emanating from the anterior centres." He also says: "It similarly receives a certain contingent of gray ascending fibres, which probably represent the centripetal spinal fibres which are distributed to these plexuses."

It is probable, and by some authors stated to be demonstrable, that all of the cerebral fibres, apparently distributed to the substance of the thalamus, are not connected with the nerve-cells of that ganglion. Some unquestionably pass *through* it to become united with the gray masses described as connected with the lining tubular gray matter of the third ventricle. In this way the thalamus becomes indirectly associated with the gray substance of the spinal cord as well as with the sensory tracts comprised within the "tegmentum cruris." It is from this stand-point that Luys expresses himself as follows:

"From this double induction we are therefore led to consider the masses of gray matter usually described under the name of "optic thalami," as essentially central regions which are the bond of union between the various elements of the entire cerebral system.

"Through their tissues pass vibrations of all kinds—those which radiate from the external world, as well as those which emanate from vegetative life. There, in the midst of their cells, in the secret chambers of their peculiar activity, these vibrations are diffused, and make a preparatory halt; and thence they are darted out in all directions, in a new and already more *animalized* and more assimilable form, to afford food for the activity of the tissues of the cortical substance, which only live and work under the impulse of their stimulating excitement."

PSYCHICAL TRAUMATISM IN INEBRIETY.

A CLINICAL STUDY.

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CASES like the following come under the constant observation of nearly every physician.

A person in previous good health suffers from a severe attack of typhoid fever, and recovers, but ever after he is aware that he has lost much of his former vigor and strength. Diseases which come on after this seem more severe, and in his opinion there is an intimate connection with the fever which has long ago preceded it.

In a case of pneumonia with full recovery, the function of respiration is never the same. A loss of power is experienced which, although it cannot be defined, is apparent.

In the very common cases of malaria which exists for some time, after recovery there is often a sense of lessened vigor and debility, which may continue through a lifetime. A person suffers from sunstroke and recovers, but ever after there is a peculiar susceptibility to heat influences, and weakness of brain function, which dates from this event.

A simple fracture of the leg, attended with a long period of convalescence, not unfrequently leaves the same entailment of weakness and lessened vital force.

A man of vigor is suddenly overwhelmed with grief at

the loss of relatives, property, or other event which profoundly impresses the organism. Some time after he is aware that he has lost some vital force; his cerebral health is wanting in integrity. He is conscious of a change; and is more susceptible to unfavorable conditions and changes than before.

A railroad accident takes place, many lives are lost, and those who escape uninjured are greatly excited. After a time reaction comes on, and prostration, fever, or some general disturbance of the functions of the body appears. Years after, a large number of these cases will date clearly many disorders or diseases, which they may have, to this event.

The presence of a long-continued, emotional excitement, which for the time is intense and absorbing, is always followed by reaction, and, in many cases, a conscious loss of power that is never regained.

Another class of cases suffer from physical injury, and are always conscious of permanent impairment of health from this event. A man is thrown from a wagon and is made unconscious by the concussion, but recovers soon after. From this time he suffers from a change of character and disposition; later, some form of paralysis or acute inflammation appears, ending fatally. In another case a leg is crushed and amputation follows. The patient recovers and goes about in his usual health. Later, degenerative changes begin in the organism, terminating fatally in phthisis or abscesses of the glandular system. In both of these cases the connection between the injury and later disease cannot always be traced, yet there are unmistakable evidences of diminished resisting power, and conditions favorable to the inception of disease. A man falls from a building, and suffers from no apparent injury, although he complains of exhaustion and an indefinable debility. Months after

acute rheumatism comes on, and continues all his life. He will date this to the injury; and although no connection between them can be clearly made out, it would be presumption to say that it did not exist.

These cases might be multiplied almost indefinitely, and point to a wide range of causes unknown. In many diseases a traumatic cause is hinted at, but it seems not to have entered into the problem of study and treatment. This range of causes may be termed psychical traumatism, because in most cases the injury is at first of a psychical nature. The injury, whatever it may be at first, is literally the point of departure from healthy organic and functional activity.

There may be neurasthenic states of exhaustion, or positive alterations of the nerve-centres, a certain indefinable impairment of nerve force and brain integrity or control. Often this is not manifest by any special class of symptoms, but may be inferred by a general failure of some physiological resisting power essential to health.

These injuries may be properly termed traumatic, because undoubtedly a positive lesion or wound has been received. The patient is aware of it, but cannot describe this condition to others. In a study of inebriety, many of these very conditions appear in the history. We observe an early origin is often noted by some clear history of traumatism. The conclusion is inevitable that the same laws and forces prevail in these cases, although at present unknown.

Nothing can be more illogical than to apply the terms sin and vice in explanation of these cases in the absence of more positive knowledge. Long ago it was noted that injury of the brain and spinal cord was followed by inebriety. Many cases have been published of inebriety following sun-stroke, concussion of the brain, exhausting diseases of any form, or reflex irritation, and as a sequel of other diseases.

The following, from a paper which I read on this subject before the American Association for the Cure of Inebriates, and published in the *Journal of Inebriety*, will more clearly outline this phase of the subject :

“The early history of drinking is often a period of great obscurity, and the patient himself will have no clear idea of the conditions and causes which impel him to use spirits. If he has been taught to consider inebriety a vice and sin, his ideas of the early causes will be governed by this impression. If he has no fixed theories on this point, he will usually have some notion of misfortune and trouble, and consequent despair, associated with the early periods of drinking. From a clinical study the views of the patient may be of value as intimations of his present mental state, and the possible mental conditions which have obtained in the past. In all cases the tendency to exaggerate and prevaricate, without any ascertainable reason, must be considered in the problem of diagnosis. There are two distinct periods in all cases of inebriety. The first, beginning somewhere in the past, unknown and not noticeable to ordinary observers, and terminating with the first excessive use of alcohol. The second, starting from this point, and noted by the occasional or continuous excessive use of spirits, terminating only in death or recovery. This period comes under the observation of friends and relatives, and can be accurately studied, and is supposed to include the entire field of observation. Inebriety begins in the first period, and breaks out in the latter. This first period is not studied ; it is in the outer circle, the penumbra, or neurotic stage. The second period is the umbra, and inebriate stage. In this first or neurotic stage, the causes and conditions are as varied and complex as that which produces insanity. Notwithstanding their obscurity, they often present distinct intimations of inebriety far in advance. Every case will be

found to come from some special condition of change or departure from healthy activity in the organism, in which both the function and structure are involved. Even in this early stage, a certain progressive march may be noted, often broken by long, obscure halts, or precipitous strides, changing into varied forms and manifestations of disease. This neurotic stage will be marked, in most cases, by nerve exhaustion, instability of nerve force, and nutrient perversions and disturbances. Not unfrequently delusions and hallucinations about foods and drinks are unmistakable symptoms. Often persons who have never used spirits, and become fanatical in their efforts to reform inebriates, are in this stage, and sooner or later glide into the next one. These are the general indications, associated with innumerable minor hints and symptoms, that follow from all the degrees of inheritance, occupation, surroundings, and all conditions which make up physical and mental health. Traumatism may bring the patient into the first stage, or into the second at once. Or it may leave him susceptible to every physical state and surroundings. Psychical traumatism, or injury from mental agitation or powerful emotions, as a cause of inebriety, may be considered from two points of view."

One, in which heredity or previous neurotic predisposition has prepared the system to suffer from this form of injury.

In the paper above quoted I have mentioned several cases of this character. An outline of two of them will bring out this fact more clearly.

A lawyer, age forty-four, who was a temperate, hard-working man, was made unconscious by a stroke of lightning, and from recovery began to use large quantities of spirits at night. He became an inebriate and died three years after from delirium tremens. His grandfather on his mother's side died from inebriety, and two uncles were inebriates. His mother used spirits freely as a medicine for many years. Here it was clear that an inebriate diathesis existed, and was only developed or exploded by the traumatism.

A farmer who was temperate had suffered some years from nervousness and general hypochondria, was greatly excited at the burning of his barns, supposed to be the work of an enemy. He was laid up in bed for two days, then began to drink brandy, and was intoxicated from this time to death nearly every day. There was no clear history of heredity, but his nervousness and hypochondria seemed to follow from some disorder which began at puberty. Some nerve defect had lessened the vigor and integrity of the organism, and the traumatism followed, bringing out inebriety.

This class is numerous and includes all those who have inherited unstable brain and nerve forces, either from inebriety, insanity, or any form of allied disease in the ancestors. A nervous diathesis is present which simply develops from the action of traumatism.

The second class are those in previous good health, without history of heredity or any nerve defect, who became inebriates from the action of psychical traumatism.

A merchant previously healthy and temperate, forty-five years old, with no neurotic inheritance, was returning from New York City on an evening train, on the Hudson River Railroad. While moving at great speed the cars jumped the track, and ran along on the sleepers for some distance before they were stopped. The sudden alarm, crashing of the windows, and profound agitation from fear of death, produced functional paralysis, and he had to be lifted out of the car. He was taken to a farm-house, and after a few days was able to go home, but complained of exhaustion and neuralgic pains all over the body. He began to use alcohol to intoxication, and could give no reason why he drank. This continued for three years, until death from pneumonia brought on by exposure while intoxicated. Notwithstanding all the efforts of himself, relatives, and family, he drank precipitately to the latest moment of life. He began to drink soon after the injury, calling for it with great urgency. At first it was freely given, until he was so often under the influence that it had to be removed.

The second case of this character was that of a clergyman who was in good health, a man of strong temperance scruples, and very correct in all his habits. The sudden death of his wife from a railroad accident threw him into a low form of nervous fever,

that lasted for two weeks, after which he began to use spirits in large quantities. He claimed that he needed it for exhaustion as a tonic, and fully justified his use of it to intoxication. From this period he drank at all times and places, giving no cause or reason for its use except that of a medicine. He was soon discharged from the church, and became an outcast and inebriate of the lowest grade. He is now serving out a sentence for assault in State's prison. His inebriety began directly from the shock following or caused by intense sorrow and grief.

In both of these cases there was a degree of mental and physical vigor that gave no indications of this sequel, or any neurotic disease. There was no heredity in either case that was prominent, and the inebriety was purely from psychological traumatism.

I am convinced that these cases are common, and have not been noted before. Numerous letters from physicians in all parts of the country, giving me illustrative cases, have been received, indicating a wide field of causes that have never been explained before.

I propose now to study this subject a little further, and show that inebriety may be developed from a distinct physical traumatism.

A merchant aged forty-six began to drink suddenly, and not only failed in business, but became an incurable, notwithstanding every effort and means which a large circle of influential friends could bring to bear to save him. He was well, temperate, and had no history of heredity or disease up to the time of an injury from a fall on his head. He was at this time unconscious for several hours, recovered, and a few weeks after had a severe attack of pneumonia, from which he recovered slowly. After resuming business he suddenly drank to intoxication, and from this time could not and did not control himself. Every state of exhaustion and overwork would be followed by excess in the use of alcohol. The progress of the case was progressively down to the worst chronic stages.

The inebriety dated clearly to some injury of the nerve-centres at the time of the fall, and was further intensified by the pneu-

monia. This was evident by the profound exhaustion and impulsive character of the drinking.

In another case a travelling salesman of thirty-two years of age came under my care for chronic inebriety and kleptomania. He had healthy ancestors, and was temperate and in excellent health up to a severe attack of typhoid fever. The convalescence was protracted over three months. No spirits were given as medicine. Within a week after he resumed work he drank to intoxication. His only reason was great debility, which alcohol relieved. A periodicity in the impulses to drink came on, which was marked by free intervals of sobriety and active efforts to keep from all use of any form of spirits. These intervals grew shorter and the drink impulse more severe. Kleptomania appeared when drinking, and a great deal of mental disturbance followed.

In his sober moments he dated his condition in some unknown way to the typhoid fever.

In this case some lesion of the brain-centres followed from the attack of fever. A literal traumatism had taken place, and the impulsive character of the inebriety and the mental disturbances which followed pointed to this causation.

A number of cases have been reported of inebriety following direct injury of the head or spinal cord; also following severe hemorrhage or extensive wounds of the muscular tissue, and many other conditions in which the organism has suffered from direct injury and lesion. Some curious psychical phases have been noted in these cases, of which may be mentioned this fact: that often the mental state of the patient, when suffering from an excess of alcohol, is an intimation of the causes which have produced the desire for drink. This is so often noted that it may be stated as a general law, that rapid and impulsive delirium of exaltation and grandeur following an excessive use of alcohol points to a traumatic origin. *A*, when drinking, has always delirium and delusions of an elevated character, which are very intense and of short duration. He began to drink after a severe injury in the army. *B* was always delirious after using a few glasses of spirits. Only after

great quantities of spirits were used would he become stupid. After this passed, the same delirium came on. His inebriety dated from a broken leg in a railroad accident. *C* was a bold, generous man, and after drinking was deliriously cautious about every event of life. A delirium of fear and alarm filled every thought. He was a drinking man from the time of a fall from some rocks in the Alps of Switzerland. *D* was full of delirium of grandeur about his prospects and future eminence, after drinking. He was sober up to the time of a narrow escape from drowning.

Another class of cases, in which both physical and psychical traumatism is prominent, appear very often. The following is a good illustration :

A farmer in good health had his hand torn off in a machine and recovered. He suffered from impaired strength and neuralgia for a year or more. Then was shocked by seeing his son drowned, and so much agitated that he could not sleep for many nights. Soon after he began to use alcohol to excess. Such facts in the history of inebriates are not regarded by the friends as of value ; hence, are passed over in a general study where the moral side is thought to be of more prominence.

A lawyer received a severe flesh wound from a pistol ball, and one year after suffered from concussion of the brain. He became an inebriate soon after, dating from these double injuries. A farmer was kicked by a horse in the abdomen, and greatly shocked a few months after by the loss of his barns by fire. He became an inebriate from this event. In these cases no heredity and history of drinking before these injuries could be ascertained.

Another class of inebriates have been noted, whose ancestors were insane epileptics or inebriates, and who are peculiarly susceptible to traumatism of both a physical and psychical nature. These cases are always, in their best

state, close to the border-land of disease. Any injury or disease which leaves a profound impression on the system has a strong tendency to merge into severe mental disorder. Psychical injury from shock, failure, or bankruptcy of any kind, is most frequently followed by inebriety.

The inebriety is always of a periodical and dipsomaniacal type. In some cases epilepsy appears, and convulsions, with profound mental disturbances.

Where inebriety is associated with epilepsy, dipsomania, and marked with active delirium, it is in all probability the result of traumatism acting on a degenerate organism.

Cases of so-called alcoholic epilepsy are often traced to traumatism and an insane or inebriate diathesis.

These cases have frequently a strong element of criminality, which appears in a large variety of motiveless crime: impulsive murder, assault, or forgery, without premeditation or apparent object.

Alterations of character, disposition, and temper, nutrient perversions, neuralgias, eccentricities, and many other nameless hints of traumatism and degeneration are present.

Another very interesting class of cases are seen, where traumatism was followed by inebriety, in persons who were previously worn out or exhausted. The business or professional man who is thoroughly exhausted, anæmic, and of low vitality, is always susceptible to traumatic injuries of a psychical nature. If they do not provoke inebriety at once, they develop profound conditions of neurasthenia, for which alcohol may be found to be an exceedingly attractive narcotic, not only quieting the undefinable pain, but masking all the other symptoms and giving an impression of strength.

In this way inebriety is developed with more or less certainty.

It is along this line that the use of alcohol as a remedy is

often used with such bad results. Exhaustion and traumatism have prepared the way, and inebriety follows from the slightest exposure. Clinical histories of cases illustrating these facts are numerous.

Traumatism may be said to act in two ways. The first is by a general shock to the organism, throwing the patient into a susceptible condition, and developing a latent tendency which otherwise might not express itself. This may be from the depressing effects of sudden abstraction of nerve force injuring the nerve and its function. The general method is by direct injury or lesion to the brain or spinal cord, and the consequent irritation and reflex action which follow.

Inflammation and thickening may follow in a slow process.

Some of the practical conclusions which will be apparent may be stated as follows :

1. Traumatism in any form may so impress the organism as to bring on inebriety at once. Alcohol in any form should never be given in cases suffering from the immediate or remote effects of traumatism.

2. All cases of inebriety originate in definite causes, of which traumatism may be very common. Eschars on the head are significant of this causation, and should always be inquired into. Traumatism may serve as an exciting cause, kindling into activity existing nerve degenerations or hereditary conditions.

3. Inebriety can always be traced to some defect of nerve force and physical change, which may come from traumatism direct or indirect. The more thoroughly this is known the more exact the treatment.

4. A full knowledge of the traumatic causes will point out the natural means and methods of treatment. It will help to solve the practical question of restraint, and the value of seclusion and rest.

5. The prognosis of these cases can be more clearly predicted, and the exact means used to prevent the chronic conditions and give the patient the benefit of early treatment.

6. This factor in the causation of inebriety deserves a careful study. From this point of view, many of the obscure cases can be cleared up, and the means and methods for the prevention and cure will be indicated.

CONTRIBUTIONS TO PSYCHIATRY.

By JAMES G. KIERNAN, M.D.,

CHICAGO, ILL.

XIV.—CONIUM IN ACUTE MANIA.

JOHN HUNTER¹ long ago called attention to certain phenomena belonging to the therapeutic use of conium, which rendered it an agent likely to be of value in the psychoses. He noticed that during its administration the nutrition of the patient improved. Tiryakian,² found that conium acted on the cerebro-spinal centres. Bochefontaine³ and Prévost⁴ found that conine diminishes or destroys the physiological activity of the motor nerve centres, and finally abolishes nervous motor excitability. The researches of Storck and Whytt,⁵ although somewhat crude, tend in the same direction. Harley⁶ claims that: First, the operation of hemlock varies in the same individual according to his motor activity. The effect will be found to vary in proportion as the activity varies. In those whose bodily vigor gradually declines as the day wears away, a dose which will be followed by no appreciable effect in the early morning, will produce decided symptoms in the evening, and *vice*

¹ "Works of John Hunter," vol. ii, p. 379.

² *Thèse de Paris*, 1878.

³ *Bulletin Générale de Thérapeutique*, 1881.

⁴ *Archives de Physiologie*, 1880.

⁵ Observations on Nervous Disorders.

⁶ "Old Vegetable Neurotics."

versa. Second, those leading sedentary, inactive lives are more readily affected than those of active habits. A delicate person of active habits will therefore bear a larger dose of conium than one having abundance of strength, though but little energy. Third, an active, restless child will often take, with scarcely any appreciable effect, a dose of conium sufficient to paralyze an adult of indolent habits. Conium in Harley's opinion represses and removes irritative excitement of the motor centres, and is a tonic to them in cases which require its use, and in this way it acts directly in improving the nutrition of the body.

Acute mania, according to Mendel,¹ is "a functional cerebral disease, characterized by a morbid acceleration of the conceptions, and a morbidly exalted irritability of the cerebral motor centres." This definition which corresponds to my own idea on the subject, exactly covers a condition in which conium would be ideally indicated. Acting in accordance with the suggestion of Harley,² I was led to use conium in acute mania. The various preparations of this drug given in the pharmacopœia were tried, but the majority were of little effect; the tincture was inert. The succus seemed at times to produce the characteristic effect, but was very variable; conine was not to be obtained, and at last a good fluid extract made by Squibb was placed in my hands. The first case in which the drug was used was that of a large powerful man, who became suddenly addicted to solitude, and spoke to himself and appeared slightly depressed; this condition gradually passed off into one where he was good-humored and boisterous, but very incoherent in words and actions.

He was continually yelling, and darting his head forward, but in the same way that a rough man would indulge in boisterous horse-play. Neither hallucinations nor delusions

¹ Die Manie.

² "Old Vegetable Neurotics."

were present. He was given one and two fifths grammes of the fluid extract just mentioned. After twenty minutes, he was noticed to be giddy and less active, especially in his demonstrations. At the end of an hour, as the effects seemed to have worn off somewhat, the same dose was repeated. He was now, at the end of half an hour, found to be unable to walk, glared somewhat fiercely at any one entering the room, but did not make any demonstrations against them. These effects of the drug lasted for five hours, when the patient again became demonstrative. He was given, just before retiring, three and one fifth grammes of the drug, which rendered him more quiet than he had been for two weeks previous under chloral hydrate, hyoscyamus, or morphine, which had been administered for their hypnotic effect. The drug rendered the patient calmer, but did not produce slumber by its direct hypnotic effect. During six weeks of this treatment, the patient's nutrition improved, and he was finally discharged recovered.

The peculiarity of the conium as regards slumber led to a modification of the treatment in a second case, in which the remedy was tried. The patient had been treated at home by a physician, and had received from one hundred and eighty to three hundred and sixty centigrammes of chloral hydrate, per diem, without marked effect as regards relief of the insomnia, whereupon the patient was transferred to the asylum. On admission he was restless, boisterous, and emotional. He claimed to be the son of a king, and a great humorist, told pointless stories, and made attempts at punning, yelled and sung incoherently. There were evidences of the existence of hallucinations of hearing. He was immediately given one hundred and twenty centigrammes of the fluid extract of conium, which quieted him for an hour, when he again became excited. The same dose was given, quieting him for a much shorter

period. The dose was then doubled, and he remained quiet for six hours. On retiring, two hundred centigrammes of the fluid extract were given, and the patient remained quiet during the night, but did not sleep. During the next day he received four hundred centigrammes, divided into four doses, at intervals of three hours each, and remained comparatively quiet during the day. At night he was given, \mathcal{R} : Extract. fluid. conii, extract. fluid. hyoscyam., \overline{aa} .90; chloral. hydrat., 1.20; aquæ, q. s. ad 8.00. M. S.: at a dose. Under this treatment the patient slept well. This treatment was kept up for about two months, when the patient recovered.

In a case of recurrent mania, presenting much the same symptoms, the same treatment was employed. The patient recovered in much better condition physically than he usually presented after his periodical attacks of insanity.

Another case was that of a man arrested for attempting to undress in the street, and found to be insane. He sang incoherently for the first three nights of his detention in the police-station, and remained sleepless despite large doses of chloral and morphine given him by the police-surgeon. On admission he claimed to be engaged in a walking match, and rushed wildly around the reception-room when admitted into it. He was sent to a ward and ordered one hundred and twenty centigrammes of fluid extract of conium, and by the following morning the delusion respecting the walking match had completely disappeared; the patient having been markedly quiet during the night. He was kept under the influence of conium almost constantly for three weeks, and then the drug was only employed at night. After four months' treatment the patient markedly improved physically and completely recovered. The conium appeared to have had a direct effect on the delusion, but this was evidently

due to its repressing the irritability of the motor centres, thus removing the source of the delusion.

Cases might easily be cited of the same general tenor, but would be simple repetitions. They do not show that conium is a specific for acute mania. This psychosis is a relatively self-limited disease, having, as a rule, a tendency to end in recovery or death, or, much less frequently, in consequence of complications, in dementia. Death usually occurs from exhaustion, and it is by no means improbable that this plays an important part in the production of dementia. This exhaustion usually results in producing exhaustion in two ways: first, directly; second, by producing delusions, which, in their turn, cause fresh motor excitement. Conium quiets this motor excitement, thus removing a tendency to disease or death. From my present stand-point I am inclined to prefer conine to any preparation of the drug: first, because the alkaloid can be easily administered hypodermically; second, because the action, analogous to curare, of an agent, conicine, which exists in the fluid extract and succus, is thus avoided. To the influence of this latter alkaloid is doubtless due the many failures with the drug.

From what has already been said, I think I may be permitted to draw the following conclusions: First, that conium or its alkaloid conine is of marked benefit in acute mania; second, that it may apparently cause the disappearance of delusions and display a seeming hypnotic action, but that these are due to its removing the motor irritability, the cause of the insomnia and the source of the patient's delusive ideas; third, that the drug acts directly on the motor centres; fourth, that while the drug has no hypnotic action itself, it promotes the hypnotic action of other drugs by removing the irritability of the motor centres which interferes with slumber; fifth, that much larger doses can be safely administered than is generally done; sixth, that its chief

beneficial action in acute mania and allied states is derived from its prevention of extreme exhaustion, arising from increased motor irritability; seventh, that the alkaloid cocaine is, in all probability, preferable to any form of the drug, since the influence of the agent conicine is thus avoided, and the drug easily administered hypodermically, a matter of considerable importance when the difficulty of administering drugs per orem is taken into account; eighth, despite the present prevalent cant about the "chemical restraint of the brain-cell," which arises from the *laissez aller* policy, too dominant in the mental and physical therapeutics of insanity, it is the physician's duty to prevent his patients dying from exhaustion.

XV.—CHLORAL HYDRATE IN THE PSYCHOSES.

In the present paper I do not so much intend to discuss the therapeutic effect of the drug as certain secondary results of its action. Introduced by Liebreich as a safe and rapid hypnotic, it has, while maintaining its place, shown its ability to produce effects which were unknown at first to its introducer, and were by him at length referred to impurity of the drug, a theory adopted as late as 1880, by Dr. H. H. Kane,¹ to account for certain of the phenomena referred to the use of chloral hydrate.

Prominent among the effects produced by chloral hydrate is conjunctivitis. This has been observed by H. M. Lyman,² Blackwood,³ Turnbull,⁴ Lee,⁵ Anstie,⁶ Kane,⁷ Mat-tison,⁸ Kern,⁹ Murphy,¹⁰ to frequently follow upon the use

¹ "Drugs that Enslave."

² Cited by Kane, *op. cit.*

³ *Philadelphia Medical and Surgical Reporter*, Nov. 9, 1878.

⁴ *Ibid.*

⁵ *Ibid.*

⁶ *Practitioner*, 1874.

⁷ *Medical Record*, 1881.

⁸ Proceedings, Kings County Medical Society, May, 1879.

⁹ *Practitioner*, 1873.

¹⁰ *Lancet*, 1877, vol. i.

of chloral hydrate. In my experience it was so frequent that I was led to regard it as one of the constitutional effects of the drug. Facial œdema has been found to be almost equally frequent. Kirn believes both of these due to a weakened condition of the vaso-motor nerves of the head and face. Dr. Wyrzykowski¹ comes to the conclusion that the long-continued use of chloral hydrate affects nutrition very decidedly; that this disturbance of nutrition especially affects the mucous membranes and the skin, and gives rise to dermatoses and œdema. This is brought about in two ways—indirectly by vaso-motor paralysis, and directly through the influence of chloral on the red corpuscle. This action of chloral is very strongly marked in neurotic individuals and lunatics. Researches of Crichton Browne,² Monkton,² Pelman,² Kirn,² Webb,² N. R. Smith,⁴ Remondino,³ Curschman,³ Henan,⁶ Kirkpatrick Murphy,⁷ Kane,³ Kinsman,³ Djuberg,⁸ Brady,⁸ Schüle,⁹ Brochin,¹⁰ Burman,¹¹ Farquharson,¹² Ingalls,¹³ Liebreich, O.,¹⁴ Mayer,¹⁵ Martinet,¹⁶ and Neal,¹⁷ tend to support these conclusions of Wyrzykowski. Among the most serious consequences produced by chloral hydrate are those resulting from its influence on the heart, lungs, and kidneys. Dr. S. Kirn,² Jastrowitz,² Hammerstein,² Schüle,⁹ all have observed

¹ Pomietnik, T. L. W., iii, 1874, 289.

² Cited by Kirn, *op. cit.*

³ Cited by Kane, *op. cit.*

⁴ *Medical Record*, p. 91, 1871. *Boston Med. and Surg. Journal*, 1871, July.

⁵ *Deutsches Archiv f. klinische Medicin*, p. 139, 1871.

⁶ *British Medical Journal*, Jan. 24, 1880.

⁷ *Lancet*, Aug. 2, 1873.

⁸ Cited by Wyrzykowski.

⁹ *Allgemeine Zeitschrift f. Psychiatric*, Band xxviii, Heft 1.

¹⁰ *Bulletin Générale de Thérapeutique*, Feb., 1880.

¹¹ *Lancet*, March 16, 1872.

¹² *British Medical Journal*, 1880.

¹³ *Medical Record*, 1871.

¹⁴ *Lancet*, June 16, 1877.

¹⁵ *La France Médicale*, 1876.

¹⁶ *Thèse de Paris*, 1879.

¹⁷ *Lancet*, Aug. 23, 1873.

dyspnœic phenomena due to chloral. Pollak¹ says that in affections of the heart, lungs, and digestive tract, chloral hydrate is partly inert and partly productive of unpleasant and even dangerous consequences; and, therefore, in such affections, it should be employed with the greatest caution, or absolutely contra-indicated. Rae and Husband² report cases in which pulmonary hemorrhage resulted from the use of chloral hydrate. Kane and Orton³ speak of renal hemorrhage from chloral hydrate.

My own observations on these effects of this drug are as follows: In eleven cases of acute mania and three cases of melancholia with frenzy, exhibition of 535 centigrammes of the drug, gradually increased to eight grammes, was followed by congested conjunctiva, widely dilated, irregular pupils, feebly responsive to light; and roseola of face and neck. On discontinuance of the drug, these symptoms disappeared. In six cases of hebephrenia with episodial excitement, six months' use of the drug, in doses before mentioned, resulted in conjunctivitis, facial and nuchal œdema, and constant coldness of the extremities; all of which symptoms subsided on withdrawal of the drug. In four cases of progressive paresis attended by extreme maniacal excitement, five grammes, daily, of chloral were followed by increased excitability, facial and nuchal congestion, *contracted* pupils, dyspnœa and roseola, all of which subsided on disuse of the drug. In twenty-six cases of progressive paresis, in which much depression alternated with elation, the use of two grammes of chloral hydrate per diem, gradually increased to seven grammes, produced conjunctivitis, diplopia, facial œdema, cold extremities, inarticulate loquacity, desquamation of cuticle, and ulceration around nails; all of which phenomena diminished and disappeared on withdrawal of the drug.

¹ *Allgemeine med. central Zeitung*, March 7, 1874.

² *Edinburgh Medical Journal*, Nov., 1871.

³ *Edinburgh Medical Journal*, Nov., 1876.

All of these phenomena indicate that in all probability they are produced by the action of the drug on the vaso-motor centres of the medulla oblongata. That the drug does produce striking vaso-motor phenomena is shown by the paraplegia, amblyopia, etc., reported as resulting from its use, and disappearing on its discontinuance. The pulmonary and cardiac dyspnœa and pulmonary and renal hemorrhages should lead to extreme care in the use of chloral hydrate in psychoses complicated by nephritic, pulmonary, and cardiac disease. The tendency to trophic changes in the skin of progressive paretics, and the deficiency of the capillary circulation of the extremities of melancholiacs and epileptics, should, were there no other reasons in the second psychosis, lead to caution in its use in these conditions. The existence of a cardiac lesion was, to me, always a contra-indication for chloral hydrate. In pulmonary disease I have given it, if at all, with caution. It is certainly a potent agent for good in the psychoses, but an equally potent agent for harm if carelessly used.

CONSIDERATIONS ON THE PATHOLOGY AND THERAPEUTICS OF EPILEPSY.

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IF we scrutinize the accounts of those post-mortem examinations of epileptics which have been recorded in various portions of medical literature, we shall be astonished by the variety as well as by the inconstancy of the morbid anatomic changes. Almost every organ of the body has exhibited pathological modifications; but the variability of the majority of these phenomena precludes the possibility of designating any particular group of findings as especially characteristic of the disorder.

There is, however, one cerebral district, which in the majority of epileptics is the seat of more or less profound morbid changes—the cortex. In these cases the primary change may often be found in the cranial bones or in the membranes. In epileptiform attacks from gross morbid changes of the brain, the lesion is found situated in or near the vicinity of the cortex. Regarding the *modus operandi* of an epileptic attack, experimental investigation has furnished us with some suggestive data. Brown-Séquard has developed an epileptic condition in guinea-pigs by injury to different portions of the nervous system. The beautiful experiments of the renowned investigator in this depart-

ment of research form one of the most classical chapters in experimental pathology.

Significant also are the experiments of Hitzig, by which the latter demonstrated that a state of artificial epilepsy may be induced by injury to certain portions of the cortex. Epileptic attacks have also been induced by passing an induction current through the cortex.

Again, Nothnagel has named a circumscribed spot on the floor of the fourth ventricle the "convulsion centre." He has found, that by irritation of this particular district the entire system of voluntary muscles may be thrown into a state of tonic and clonic spasm. While, however, irritation of this centre causes convulsions, it does not serve to explain the phenomenon of unconsciousness. Accordingly, an irritation of the adjacent vaso-motor centre is also assumed, which, by causing contraction of the arteries of the brain, results in cerebral anæmia, to which physiological circumstances Nothnagel attributes the loss of consciousness.

The anæmia of the first stage of the attack is followed by a very considerable venous hyperæmia; the latter condition serving to augment the irritability of the "convulsion centre," and to increase the duration of the convulsion. The venous hyperæmia is due to the convulsions of the cervical muscles, which exercise a constricting influence upon the large veins of the neck. This is certainly a most ingenious explanation.

Nevertheless, while cheerfully admitting the great prominence which the disturbances in the vaso-motor mechanism undoubtedly assume in the production of the attack, I cannot bring myself to believe, with Nothnagel, that all epileptic paroxysms are due to an irritation of what he terms the "convulsion centre." Rather would I accept that portion of Dr. Todd's theory, as elaborated by Hughlings

Jackson, which attributes the production of the convulsions to a discharge of accumulated nervous energy from the cortex. But admitting this to be indeed the case, our argument would not in the least exclude the possibility, in certain cases, of producing an epileptic attack by irritation of peripheral nerves or of the floor of the fourth ventricle.

I believe, however, that, as a rule, the clonic and tonic spasms are proximately due to a discharge from the cortex, consequent upon a primary decrepitude resident in, or capable (when elsewhere located) of indirectly deranging the functions of, the vaso-motor centre itself. What greatly confirms me in the belief that the vaso-motor system is more or less directly or indirectly invalidated in epilepsy, is not alone the extraordinary exhibition of circulatory anomalies, visible during the paroxysm, but also the derangements in peripheral circulation which these patients display during the interparoxysmal period. These circulatory disorders find an eloquent and unmistakable betrayal in the cold and cyanotic conditions of the extremities.

If asked to trace out chronologically to the best of one's ability those factors which are most intimately concerned in the production of an epileptic attack, I should do so somewhat as follows: (1) Derangement in the vaso-motor mechanism, culminating in anæmia; (2) unconsciousness due to excessive cerebral anæmia, and convulsions due to the irritative effects of the anæmia upon the cortex; (3) anæmia succeeded by venous engorgement, due to spasm in the cervical muscles and consequent prolongation of the convulsions owing to the irritative effects of the venous hyperæmia. That rapid cerebral anæmia will produce convulsions and unconsciousness has been inductively proven by Kussmaul and Tenner. These effects were obtained in animals by ligation of those arteries which supply the brain, as well as by general hemorrhage. Again, the cessation of the

epileptic paroxysm, which takes place when the condition of venous hyperæmia, co-existing with the second stage of the attacks, is allayed by pressure upon the carotids, proves that the *continuance* of the convulsions, at least, was the consequence of the venous engorgement.

Respecting the scientific reasons for the similarity in the irritative effects of the two opposite conditions of excessive anæmia and excessive venous hyperæmia here referred to, I can offer no more adequate explanation than this: that these two antipodal conditions of the circulation are in so far identical in their physiological effects, as they both result in deficient aëration of the cerebral parenchyma. In sleep we have a *physiological* degree of anæmia, and in wakefulness a *physiological* degree of hyperæmia. It was doubtless a comparison of the vascular condition of the brain during the first portion of the epileptic attack with the condition of the same organ during sleep, which induced an eminent authority to speak of sleep as a "modified epilepsy." Such comparisons are, nevertheless, I believe, misleading, however trivially employed. The anæmia of sleep owes its origin entirely to physiological causes, while that of epilepsy is only attributable to a directly or indirectly induced morbidity in the functions of the vaso-motor centre.

Furthermore, anæmia is only *one* of other concomitant factors concerned in the causation of sleep, and to be physiologically effective must be accompanied by those same factors, more particularly by ganglionic exhaustion.

Respecting the reasons for the good after-effects which I have observed in patients whom I had treated for some time with prolonged instrumental compression of the carotids, I can only find an adequate explanation for this persistent improvement in an ameliorated condition of the vaso-motor mechanism consequent upon the rest and free-

dom from irritation afforded the same by the diminished arterial afflux.

I have for some time past treated these circulatory anomalies of epilepsy by compressing the carotids for protracted periods with an instrument which I designed for this purpose. *Vide* a paper read before the New York Neurological Society on "Carotid Compression and Physiological Brain Rest." Also an article published in the *Medical Record* of Feb. 18, 1882, as well as my monograph on the same subject published by Anson D. F. Randolph & Co., New York.

This improvement manifests itself in an increase of temperature in the extremities, in an evident improvement of the mental faculties, where these are impaired, and often in an absolute increase of weight. The beneficial effects of this treatment on innervation are certainly often most remarkable. It may perhaps be permitted, on this occasion, to venture a prediction as to the position which more or less protracted instrumental compression of the carotids may eventually assume in the treatment of this frightful disorder. I believe, then, that the most effective manner of employing it will be found to be in conjunction or alternating with very moderate doses of the bromides. Certainly a reduced and more philosophical employment of these powerful remedies is a consummation devoutly to be wished, and any procedure that holds out reasonable scientific hopes in this direction is eminently worthy of careful consideration.

This reduction is, however, only obtainable through the employment of some accessory agency, which shall aid and abet the bromides in the production of the physiological effects. Such an adjunct is, *par excellence*, more or less prolonged instrumental carotid compression. In employing this method of treatment, the physician should use his best

diligence to apply compression *some time before the abnormal circulatory fluctuations transpire*. Where the prodromata of the attack are well marked, this is not difficult. Even should the aura be not well marked, and should the attacks be of irregular occurrence, treatment by carotid compression for from one to three and more hours each day will be found to render excellent therapeutic service. These good effects will soon be found to exhibit themselves in an improved condition of the peripheral circulation, as well as frequently in a marked improvement of the mental faculties, where these have become affected.

The more the constancy of a morbid habitude is invalidated, the less the tendency to a recurrence of the pathological manifestations progressively becomes, and consequently the prospects of eventual physiological restoration are proportionately increased.

The pervasiveness of this law is especially evident during the treatment of the periodical circulatory anomalies, which are so prominent and constant an accompaniment of certain convulsive affections, such as epilepsy, as well as of those conditions of morbid cerebral activity, as seen in insomnia, mania, etc.

Of one thing there can be no doubt: if we are ever to achieve permanent therapeutic benefits, we must not alone seek by soothing remedies to diminish the abnormal explosiveness of the cerebral plasma itself, but it should also be our endeavor to combat the morbid conditions prevalent in the domain of nutrition.

The most practical method of regulating the degree of plasmatic metamorphosis is by addressing our efforts to the blood-stream itself. To understand the absolute truth of this proposition, we have but to call to mind the extraordinary achievements of hydro-therapy, general faradization, and galvanism.

INSANITY AND DIABETES.

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THE relations between diabetes and the various neuroses have been very actively discussed, but contributions to its relations to the psychoses are comparatively few and very meagre.

Seegen¹ has noticed an inter-relation between the two, of which he gives a very brief description. Monneret,² Theury,³ and Marechal (de Calvi) de los Santos⁴ have described what they regard as true diabetic psychoses. Delpech⁵ has described a case of progressive paresis coming on after an anthrax in a glycosuric; it is probable that in this case the glycosuria and the anthrax were merely premonitory symptoms of the progressive paresis.

Le Grande du Saulle⁶ has observed cases in which the memory became enfeebled, the patient became depressed or extremely apathetic; a condition interrupted by hallucinations of a frightful character, leading to suicide. Moral manifestations, according to Durand-Fardel, are rare. He

¹ Der Diabetes mellitus auf grundlage zahlreicher Beobachtungen.

² Cited in *Archives de neurologie*, tome iv.

³ Cited in *Archives de neurologie*, tome iv.

⁴ De l'etat mental chez certaines diabetiques.

⁵ Cited by Leroux, *Thèse de Paris*, 1881.

⁶ *Gazette des hôpitaux*, December, 1877.

finds that dementia is the predominant type. Cotard¹ is of opinion that many of these cases are simple coincidences. Luys² says that sugar is found in the urine of certain cases of insanity. He has found that in cases of this kind the insanity occurs in a more or less rapid manner, being subordinated to an old diabetes which has passed unnoticed. The course is, in his opinion, as follows: Under the influence of the thirst with which he is afflicted the patient becomes an alcoholic. Sudden intellectual effort upsets a brain weakened by the diabetes and the alcoholism which is its consequence, and an attack of insanity is the result. The urine is for the first time examined, and the diabetes discovered. Lailler³ has had very similar experience, and both have observed cases in which diabetes produced erotic symptoms.

None of these, however, are analogous to the cases observed by myself. One case of insanity exhibited diabetes during the fever produced by vaccination. This, however, is not the relation between diabetes and insanity to which I wish to call attention. The cases in which a marked and definite relation was detectable were as follows:

CASE I.—G. McC., aged thirty, Scotch extraction, entered the asylum in a condition of decided hypomania. He had exaggerated delusions, was much excited, and given at times to stealing. As the other physicians and myself were making urological examinations at the time, his urine was carefully examined; no sugar or albumen was detected. As he was markedly boisterous at night, he was given the usual sedative mixture of the asylum: R.: Ex. fl. conii, ex. fl. hyoscyam., āā m xv; chloral. hydrat., 3 ss; aquæ, q. s. ad 3 ss, at night. Owing to his peculiar delusions, a suspicion of the possible existence of progressive paresis arose, but the absence of all physical symptoms soon dissipated this sus-

¹ *Archives générales de médecine*, 1877.

² *Maladies Mentales*.

³ *Annales médico-psychologiques*, 1861, tome ii.

picion. The patient was, however, destructive, and, if interfered with, at times violent. As he paced restlessly up and down, and this tended to produce exhaustion, he was kept under the influence of conium, half-drachm doses being given thrice daily, in addition to the sedative mixture just mentioned. At no time during this period of excitement was there any evidence of glycosuria ; the urine being examined each day.

The patient at length became quieter. His expansive ideas were less prominent, and certain moral obliquities, at one time marking his conduct, disappeared. At this time, traces of sugar were found in his urine, which increased with his convalescence. His appetite also increased, but not abnormally, considering the circumstances. He passed urine in small quantities, but very frequently. The diagnosis of diabetes mellituria was made, although there was no marked emaciation. Within four months he was discharged recovered. In the spring of the year following his discharge, he was again admitted in much the same mental condition as at first. He had been arrested for stealing. On investigation it was found that a Chatham Street storekeeper had attempted to cheat him, supposing him to be a green countryman with plenty of money. On finding, however, that McC. was, as the storekeeper expressed it, simply a prodigious liar, the latter caused his arrest, as McC. insisted on taking the goods he had bought. On arrival at the "Tombs," he was recognized by the physician and sent to the asylum. Here he manifested the same wild, unsystematized, expansive delusions as before, and was as noisy and boisterous, requiring and receiving much the same treatment. On admission to the asylum, no sugar was to be detected in his urine, nor was there any to be found during the prevalence of the psychical disturbance. When convalescence occurred, sugar once more made its appearance, accompanied with the same phenomena as before. He was discharged, recovered, and remained away from the asylum for a prolonged period, returning to die there of diabetes and phthisis. During the intervals between the attacks of insanity, he had an excellent, but not an enormous, appetite. Thirst was not strikingly marked. The quantity of sugar was not comparatively large during the time it was present. He caught cold just previous to the last attack of insanity, which differed in character from the others, it being a species of melancholia. He had been exposed to much mental strain and had emaciated rapidly before the attack of insanity came on.

In this case there was an alternation between diabetes and the psychosis not previously noticed, to my knowledge. In the second case, a patient had attacks of epileptic insanity, which alternated with periods of calm, at which time, and no other, sugar was to be found in the urine. The patient finally died of tubercular phthisis. The third case was a man who had marked hereditary taint—a father, grandfather, and two brothers having died insane. He had, from his first admission, exhibited symptoms of circular insanity, in which melancholia, mania, and sanity alternated in the order just given. During the period of sanity and the period of melancholia, sugar was found in the urine which was entirely absent therefrom during the maniacal period. These cases justify me, I believe, in drawing the conclusion: That a species of alternation between diabetic and psychical symptoms is sometimes found in certain cases of mental disease.

THE QUESTION OF LUCID INTERVALS IN INSANITY.*

BY WILLIAM A. HAMMOND, M.D.

BY the term lucid interval is to be understood a condition in which there is a total cessation of the symptoms of mental aberration and a complete restoration to reason occurring between any two paroxysms of insanity. With this understanding of a lucid interval it must be regarded as a rare occurrence. In fact, it probably does not exist except in the recurrent and epileptic forms of insanity, and in certain varieties of monomania and of morbid impulses. As thus defined, it differs essentially from those remissions which occur in the violence of all kinds of mental aberration, and in which, while to a superficial observer the patient is sane, careful investigation by a skilful physician will not fail to reveal the evidences of unsoundness of mind. It is necessary to draw the line closely between these two conditions, and this is especially necessary in many medico-legal cases, in which it is important to show the state of an individual's mind at the time certain acts are alleged to have been done.

Shelford¹ defines a lucid interval as "not a remission of the complaint, but a temporary and total cessation of it,

*An extract from a chapter in the forthcoming "Treatise on Insanity in its Medical Relations."

¹ "A Practical Treatise on the Law concerning Lunatics, Idiots, and Persons of Unsound Mind," London, 1833, p. lxx.

and complete restoration to the perfect enjoyment of reason upon every subject upon which the mind was previously cognizant"; and he adds: "The determination as to the existence of a lucid interval requires attentive observation and long and repeated examination by a person acquainted with the subject of the patient's insanity."

Taylor¹ says, with apparently less decision: "By a lucid interval we are to understand, in a legal sense, a temporary cessation of the insanity, or a perfect restoration to reason. This state differs entirely from a remission in which there is a mere abatement of the symptoms. It has been said that a lucid interval is only a more perfect remission, and that although a lunatic may act rationally and talk coherently, yet his brain is in an excitable state, and he labors under a greater disposition to a fresh attack of insanity than one whose mind has never been affected. Of this there can be no doubt, but the same reasoning would tend to show that insanity is never cured, for the predisposition to an attack is undoubtedly greater in a recovered lunatic than in one who is and has always been perfectly sane. Even admitting the correctness of this reasoning, it cannot be denied that lunatics do occasionally recover, for a longer or shorter period, to such a degree as to render them perfectly conscious of and legally responsible for their actions with other people."

All this is very true, but a cure is a very different thing from a lucid interval, for the latter, properly speaking, if it exists at all, must be a part of the disease, during which the tendency to a return is present to such a degree that the paroxysms will almost certainly recur. A complete restoration to mental health may be followed by a recurrence of the insanity, but then the period of cessation is scarcely a lucid interval in the true sense of the term, and

¹ "The Principles and Practice of Medical Jurisprudence," vol. ii, second edition, London, 1873, p. 484.

the return should be regarded as a fresh attack. If the period during which an individual is entirely well, and extending, as it may, over several years, is to be regarded as a lucid interval, nearly every kind of insanity exhibits it.

A patient, for instance, suffers with an attack of acute mania for several months, is restored to health, goes about his business, and attends to it as well as he ever did, perhaps marries, and has children. Undoubtedly a predisposition to another attack exists, but this may never be excited into action, and the person is regarded by every one as permanently cured. But, on the other hand, the tendency may, through some sufficiently exciting cause, be roused into activity, and another paroxysm, after many years of perfect health, mental and physical, be developed. Is it not stretching the point a good deal to call this period a lucid interval? Dr. Taylor, while avoiding the Scylla of remission, runs foul of the Charybdis of cure.

The case of *Cartwright vs. Cartwright* was adjudicated upon the presumption that the patient, a lunatic, had a lucid interval when she wrote her will. The testatrix had for some time been, as all acknowledged, insane. There were no collateral circumstances to indicate the existence of a lucid interval. She was in restraint at the time she made her will, and her hands were unbound so that she could hold a pen. She was alone when she performed the act, though observed through an aperture by persons in an adjoining room, who deposed that, while engaged in doing it, she frequently left off writing, threw the pieces of paper into the fire, and walked about the room in a disordered manner. But the paper itself had no mark of irritation. Whatever outward appearance of disorder there may have been, it had no effect upon the writing itself, which was a perfectly steady and correct performance, entirely consistent with her attachments, impressions, and habits when in

a sane condition, and written without a single mistake or blot. The will was planned and completed by the testatrix without any assistance, and afterward recognized by her.¹ Sir William Wynne, in deciding in favor of the will, said: "The strongest and best proof that can arise as to a lucid interval is that which arises from the act itself, which is the thing to be first examined, and if it can be proved and established that it is a rational act rationally done, that is sufficient." But if the performance of "a rational act in a rational manner" is sufficient to establish the existence of complete sanity—for that is what a lucid interval is,—nearly every lunatic is sane. To go to the fire for warmth, to put butter on bread, to wash clothes, to dig in the garden, to make baskets, are "rational acts rationally done," but they do not establish the existence of complete sanity. For this purpose, not only a single act or a dozen acts must be "rational and done rationally," but *all* the acts must come under this category. The idea that during a paroxysm of acute mania a person can be sane enough to make a valid will, the period of so-called lucidity lasting at most an hour, is simply absurd. Even a much longer duration of apparent sanity is frequently only a superficial glaze of rationality, which may be broken through by the slightest impression. A case which is of striking application to the point under notice is within my knowledge. A gentleman of this city became, during a period of great excitement, temporarily insane. After a not very long attack of acute mania, he was apparently restored to reason, and was about resuming his business, when he conceived the idea of making his will. He sent for his lawyer, and dictated clearly and fully all the provisions which he wished inserted in this document. His property was large, but he made such a disposition of it as his legal friend thought rational if not just.

¹ Shelford, *op. cit.*, p. 290.

The will was signed, witnessed, and committed to the lawyer's hands for safe keeping. Soon afterward the gentleman had a relapse; he recovered, however, and was finally pronounced cured. Two years afterward, meeting the lawyer in the street, he requested him to come to his house that evening, as he wished him to draw up his will. His friend asked him if he desired to cancel the will already made, and which he had in his safe. "I have never made a will," replied the gentleman. "Yes," answered the lawyer, "I drew one up for you more than two years ago; you signed it; it was witnessed, and is now in my safe." The gentleman was astonished. He had no recollection of the matter, and when the will was shown to him he expressed the utmost surprise and regret at some of the provisions, which, as he said, were altogether different from those he would have made had he been of sane mind at the time. The will was destroyed, and a new one executed, differing essentially from that which he had dictated during his so-called lucid interval.

In a review of Redfield's "*Law of Wills*,"¹ Dr. Isaac Ray makes some excellent remarks relative to the theory of lucid intervals, which, I think, fairly express the prevailing doctrine on the subject among the most intelligent physicians of the present day. He says:

"No phenomenon of insanity has played a wider part in medical jurisprudence than lucid intervals, so called, and no one, we may also say, has been more differently understood. And the fact is not surprising, for they indicate a phase of the disease which none but those who have been long and intimately connected with the insane can correctly appreciate. The descriptions of it in books serve to make the matter very clear, and leave the impression that lucid intervals are frequent occurrences, and easily distinguished

¹ *American Journal of Insanity*, April, 1865, p. 515.

from other remissions of the disease; and here lies the mischief, that of using a phenomenon which is complicated with many conditions not easily discernible for any important practical purpose. It is to be regretted that the phrase, implying as it does a foregone conclusion, ever found its way into the law. It certainly has led to mistakes, and will lead to many more before it ceases to influence the decisions of the courts. One author (Judge Redfield) inclines to believe that there is no essential difference between a lucid interval and a remission of the disease, and such we suppose to be the view generally entertained by those who are specially acquainted with the subject. The idea of a lucid interval being a temporary cure is now confined, we apprehend, to the writings of those whose notions of the disease have been derived from books rather than from the wards of a hospital. Like most other diseases, insanity is subject to remissions more or less complete, and there is no more propriety in regarding them as recoveries than there would be in considering the intervals between the paroxysm of a quotidian fever as a temporary recovery. And if the disease remained in any condition whatever, it is mere presumption to say that the operations of the mind are entirely beyond its influence. This effect may not be very obvious, but the fact of its possible existence should render us cautious how we regard the acts of the insane during a lucid interval. In criminal cases the occasion will seldom arise, but in the matter of wills and contracts the decision will often depend on the speculative views that prevail on the subject."

It is thus seen that Dr. Ray doubts the existence of lucid intervals in the sense in which they are commonly understood by lawyers, and as defined in the beginning of this description.

Relative to the subject, Dr. George Combe¹ says: "But,

¹ "Observations on Mental Derangement," Edinburgh, 1831, p. 221.

however calm and rational the patient may be during the lucid intervals, as they are called, and while enjoying the quietude of domestic society or the limited range of a well-regulated asylum, it must never be supposed that he is in as perfect possession of his senses as if he had never been ill. In ordinary circumstances and under ordinary excitement, his perceptions may be accurate and his judgment perfectly sound, but a degree of irritability remains behind which renders him unable to withstand any unusual emotion, any sudden provocation, or any unexpected or pressing emergency. Were not this the case, it is manifest that he would not be more liable to a fresh paroxysm than if he had never been attacked, and the opposite is notoriously the fact; for relapses are always to be dreaded, not only after a lucid interval, but even after perfect recovery; and it is but just, as well as proper, to keep this in mind, as it has too often happened that the lunatic has been visited with the heaviest responsibility for acts committed during such an interval which previous to the first attack of the disease he would have shrunk from with horror."

Dagonet¹ declares that "the lucid interval is no more health than the intermission between the attacks of ague is a cure. However much restored the reason may apparently be, the individual is placed in a special situation which the least circumstance may easily and instantaneously transform into one of disease. Doubtless the distinction is often difficult to establish; it belongs to the physician, and, above all, to the physician who has devoted himself to the study of insanity, to fix the character after an attentive examination in certain special cases. Thus, it is not rare to observe, in the asylums for the insane, some

¹ "Nouveau traité élémentaire et pratique des maladies mentales," Paris, 1876, p. III.

patients, in the moments of remission in their affections, show themselves to be calm and rational to such a degree that it would be difficult to prove that they were at all in an insane condition. If, however, they were in any way to be subjected to the excitements of life, they would immediately return to their state of intellectual derangement."

There is a great deal more that might doubtless be adduced relative to lucid intervals, were it not for the fact that the subject in most of its relations appertains to the domain of medical jurisprudence. Enough has, however, been said to show that full, complete intervals in the course of an attack of insanity, during which the individual is well, and would so be pronounced by competent observers, are exceedingly rare. They are only to be found, in my opinion, in recurrent mania and the other forms previously mentioned. Remissions are common enough, but a remission is not a restoration to health, and the patient in whom it is exhibited ought not to be regarded as being possessed of legal responsibility.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, January 2, 1883.

Dr. LEONARD WEBER read a paper entitled "A case of syphiloma of the right vertebral, with thrombosis of the basilar artery," presenting at the same time the specimen showing the occlusion.

The patient, æt. forty-two, single, was seen in 1878. For a few weeks previous to his visit, he had felt unusually tired and weak, was losing his appetite, had occasional nausea, irregular action of the bowels, and frequent headaches of the nature of painful pressure on top of head, and disturbed sleep. Twelve days later he had vertigo and a constant roaring noise in both his ears; numbness of right leg and the pressure on top of head had increased; also paresis of the right upper and lower extremities, and of the right half of the face and tongue. Eye-sight normal; no strabismus. Articulation and expression undisturbed. He was able to void his urine, and his bowels were evacuated by a simple enema. Vertigo continued, also pressure on top of head; no pain anywhere else, no muscular throbbings.

On questioning him with regard to syphilis, he admitted having had a small sore on his penis twelve years ago. In the morning of the thirteenth day he was taken with a terrible fit of general convulsions, lasting several minutes. While this paroxysm lasted, cyanosis developed and became so intense that his face became almost black. He lost consciousness after the first attack, the convulsions returned about every half hour subsequently, and he died in deep coma the same morning. The autopsy was made the following morning, and

limited to the head. After removing the brain the basilar artery was found to be filled completely with a firm clot, reaching from the place of union of the two vertebrals about an inch upward. On making a longitudinal section, we cut into a dense little tumor growing from the inner walls of the right vertebral, just at the junction with its fellow, and almost completely obliterating the lumen of the basilar artery at the very beginning of its course. A microscopic examination showed the tumor to be composed of small cells and connective tissue, corresponding in its character to that of the similar gummatous neoplasms of the cerebral arteries as described by Heubner and others.

We further noticed a small but sharp exostosis in the left fossa occipitalis. The crista galli was found to be unusually long, sending a number of osseous stalactites into the falci-form process of the dura mater. In the substance of the brain nothing abnormal was found.

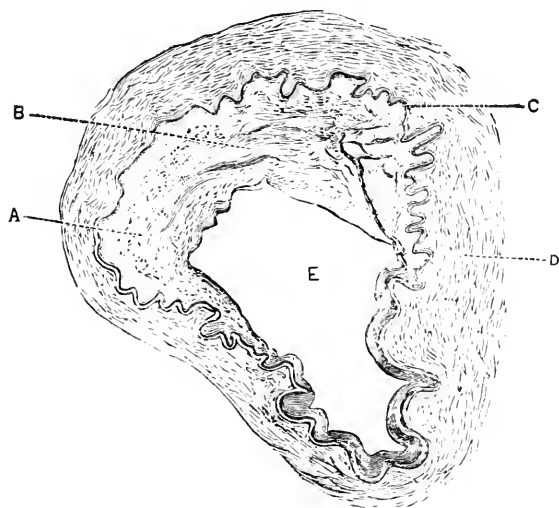
In examining the specimen of the basilar with portions of the two vertebral arteries, it will be seen that the thrombus extends from the junction of both vertebrals, an inch or so upward, depriving the medulla oblongata of the supply of arterial blood and causing the death of the patient.

Dr. JOHN A. WYETH corroborated Dr. Weber's account, and related a second case in which the autopsy had shown a very similar lesion.

The patient was a female, æt. about sixty-five. Syphilitic history dating back twenty years. For about fifteen years she had had complete hemiplegia of the left side, partial of the right, and incontinence of fæces and urine. When first seen by Dr. Wyeth, five years ago, articulation was indistinct, but mind was unimpaired. She refused all treatment, and died suddenly in the night, in 1882.

The skull was about one third thicker than usual, and presented a few ostoses. Brain in fair condition. Cerebral arteries permeable, but in a condition of fatty degeneration. Basilar almost occluded by endarteritis obliterans.

The patient died from anæmia of the medulla. The following cut illustrates the nature of the lesion.



E. Lumen, about two thirds obliterated. D. The muscular coat and adventitia nodulated by inflammatory changes. C. The elastic lamina. A. Inflammatory new-formed tissue in the intima, composed of large spindle and round (on section) cells, with the normal cells of the intima next to the elastic lamina and the lumen of the vessel. B. The hyaline substance seen distinctly with a higher power.

After a brief discussion upon the eccentricity of syphilitic lesions and their symptoms, the Society listened to the reading of the paper of the evening upon *Allochiria* by Dr. WILLIAM A. HAMMOND.

ALLOCHIRIA: ITS NATURE AND SEAT.

On the 4th of November, 1882, I examined, in conjunction with Dr. L. A. Stimson, and at the request of the Corporation Counsel, a gentleman who, it was asserted, had received a serious injury of the spine. It appeared that on the 27th of February, 1881, he was driving from the city to his residence at South Yonkers. It was a dark, foggy, and rainy night, and he drove into a ditch which the ice and snow had formed entirely across the road. The front axle of his carriage was at once broken, and he was jerked forward against the dash-board. The horses started to run, and dragged the vehicle, with him in the constrained position mentioned, for the distance of about two hundred feet

before they were stopped. He then, not thinking himself to be severely injured, procured another carriage, and drove on, in his wet clothes, through the rain to his home, which he reached at about half-past two o'clock the following morning. In a day or two, symptoms indicating spinal trouble began to be developed. He some time afterward consulted a physician of this city, who diagnosticated Pott's disease. This opinion was confirmed by a surgeon to whom the physician took him, and a plaster jacket was applied. Amendment soon began, and, finding the jacket uncomfortable, he removed it; but, his symptoms recurring, it was replaced, and, in addition, an apparatus designed to keep the head from resting directly on the vertebral column was applied.

Several months elapsed, during which he was at times better and at others worse. Upon the whole, however, there was no decided improvement. The fact that he had brought an action for heavy damages against the city was the immediate cause of my examination.

So far as I could determine from the clinical history given me by the patient, I was satisfied that at no time had he suffered from injury of the vertebral column or subsequent Pott's disease. Certainly he exhibited no symptoms of that affection when I visited him, and the surgeon who applied the plaster jacket testified at the trial, a month subsequently, that he was cured. Neither Dr. L. A. Stimson, nor Dr. Hamilton, nor Dr. Clymer could discover indications of its existence. It is quite evident that he did not have Pott's disease on the 4th of November, when I saw him, or at any subsequent period, and exceedingly probable that he had never had it.

He complained, however, of pain throughout the whole spine, and of excessive nervous irritability. He had had contractions of the muscles of the lower extremities, and on causing him to walk about the room it was evident that his limbs were stiff, and that he lifted his feet with difficulty. His gait was very different from that of a person suffering from locomotor ataxia. The feet were not raised from the ground with a jerk and put down with the two distinct

movements so characteristic of locomotor ataxia, but were moved as if they were weighted down with some heavy substance. The knee-tendon reflex was greatly exaggerated on both sides.

Up to this time no experiments had been made with the view of testing the sensibility of the lower extremities. These were now denuded of their clothing, and the patient was told to shut his eyes. The touch of a finger, the scratch of a pin, or a deep puncture with the blade of a pen-knife was equally unfelt in the right leg. On making the like experiments on the left leg, he complained of pain when the knife was stuck into it, and automatically carried his hand to the place which he supposed I had punctured, but, instead of touching the spot injured, he indicated the exactly corresponding situation on the other leg. Repeated experiments led to like results. He had sensibility in the left leg, but referred all impressions to the other side. Dr. Stimson assisted in verifying these results.

I came to the conclusion that the patient was suffering from antero-lateral or lateral sclerosis, with the implication of the posterior horns of gray matter, and probably of the membranes of the cord to a slight extent.

With the diagnosis, however, I have little to do at present, my intention being to restrict what I have to say to the crossed sensibility which the patient exhibited. To this condition the name *allochiria* (ἄλλος, χείρ) has been given by Professor Obersteiner,¹ of Vienna, who was the first, so far as I know, to call special attention to the phenomenon, though it had been incidentally alluded to by Leyden, and one or two others, as an occasional symptom of locomotor ataxia. A case following severe cranial injury has also been reported by Ferrier.²

Of Obersteiner's four cases, two were of locomotor ataxia, one was hysterical, and the other was the result of severe and direct injury of the spine. Death ensued in this last case, and, on post-mortem examination, it was found that there had been inflammation of the first, second, and third

¹ "On *Allochiria*, a Peculiar Sensory Disorder," *Brain*, July, 1881, p. 153.

² "Case of *Allochiria*," *Brain*, October, 1882, p. 389.

lumbar vertebræ, meningitis, and extensive transverse inflammation of the cord. The posterior columns, for a considerable distance above the seat of the injury, were in a state of sclerosis, and the posterior horns of gray matter in portions of the cervical enlargement were "transversely divided by a peculiar, structureless, transparent mass, intensely colored by carmine, and very similar to the mass which is found round the larger vessels in inflammatory processes in the cord."

I have quoted Obersteiner's own language because I think it is to such a lesion of the posterior horns of gray matter as he describes that the phenomenon of allochiria is to be ascribed. Neither he nor Ferrier offer any explanation of the mechanism of its production. On the contrary, they declare their inability to do so.

Certainly allochiria is not a usual symptom of sclerosis of the posterior columns of the spinal cord. I do not think it is ever met with in uncomplicated cases of this disease, nor do I think it is a possible condition in such instances. For the complete understanding of the subject, a few words relative to the anatomy and physiology of the cord are necessary.

The posterior tract of gray matter is probably the only channel by which sensory impressions reach the brain, the posterior columns having, in their normal condition, nothing whatever to do with the transmission of such impressions. But, before reaching the posterior horns, the posterior roots of the spinal nerves pass through the columns of Burdach, and, when these are the seat of inflammation, as they are in locomotor ataxia, disturbances of sensibility, such as hyperæsthesia, paræsthesia, and anæsthesia, are produced in the parts below by the pressure exerted upon these roots,

It is quite certain, as Brown-Séquard, Lockhart Clarke, Gerlach, and others claim, that there is an almost complete decussation of the sensory fibres within the gray matter—those from the right side of the body passing over to the left side of the cord, and *vice versa*. We are taught these facts, not only by experimental physiology, but also by the instruction which we derive from the study of cases of dis-

ease or injury of the cord. Disregarding, as of no importance in the present connection, the fibres that do not decussate, we have in the accompanying diagram (Fig. 1)

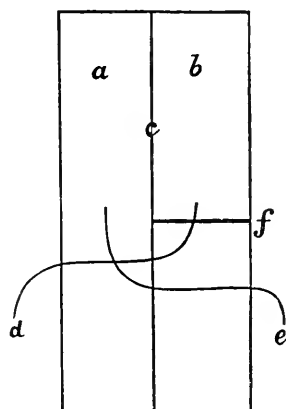


FIG. 1.

an explanation of the phenomena: *a*, the left posterior horn of gray matter; *b*, the right posterior horn; *c*, the commissure of gray fibres; *d*, sensory fibres coming from the left side of the body; *e*, sensory fibres coming from the right side. A lesion of the right posterior horn at *f* would produce anæsthesia of the left side of the body, and *vice versa*.

Now, in sclerosis of that portion of the posterior column called the column of Burdach, the lesion is almost always symmetrical, both sides being equally and correspondingly affected. As a consequence, we have in the latter stages more or less profound anæsthesia and retardation of the conveyance of sensory impressions in both lower extremities, and this not only from pressure exerted upon the posterior roots of the spinal nerves, but from an extension of the morbid process to both posterior horns of gray matter, exactly as would be the case if the line *f* in the diagram were prolonged so as to interfere with the nerve *e*. Allochiria is in such cases an impossibility, for all channels to the brain are closed, wholly or in part, and the patient either does not feel at all or feels imperfectly in the parts below.

But, in those cases of disease or injury of the posterior horns of gray matter, whether they be primarily involved or secondarily, as in locomotor ataxia in which allochiria exists, either the lesion must be unilateral, or, if both horns are involved, the lesions must be at different levels. In either case, as Dr. Morton suggested in a discussion in which our views of the subject were interchanged, allochiria must exist. The accompanying diagram (Fig. 2) will make this

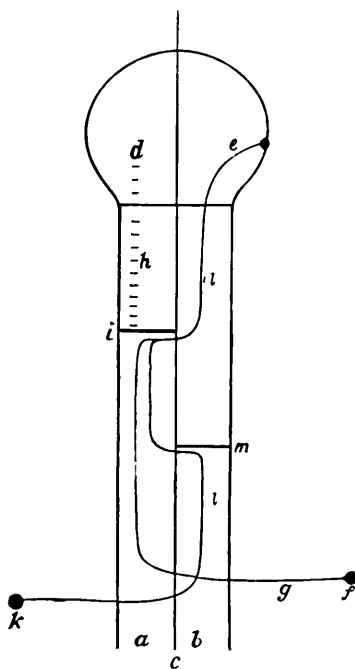


FIG. 2.

plain: Let *a* represent the left posterior horn of gray matter and *b* the right, *c* the gray commissure, *d* the left hemisphere, and *e* the right. A sensation starting at *f* in the right lower extremity would in the normal condition follow the fibres *g* and *h* to reach the cortex *d*, where it would be referred to its proper situation at *f*. But suppose there is a lesion in the left posterior horn at *i*; then the sensation would be directed through the gray commissural fibres to

the right posterior horn, and would reach the cortical centre in the right hemisphere, which is in relation with fibres coming from the left side of the body. The sensation, would, therefore, be referred to *k* through the fibres *l*, *l*. This would constitute the condition of allochiria, in which all impressions made, for instance, on the right side of the body, would be felt on the left, while those made on the left would be felt in their proper situations.

But suppose there is another lesion. If this is symmetrical with that on the right side at *i*, it is evident that no sensorial impressions from either side can reach the brain; there will be absolute anæsthesia in all parts below the lesion. Let us further suppose, however, that the other lesion is lower down, at *m*. Then impressions coming from *k* will be diverted to the left side on reaching the obstruction, and, arriving at *i*, will either be altogether arrested, leading to complete anæsthesia at *k*, or will be again diverted, and, reaching *e*, though with their strength greatly impaired, will be imperfectly felt at *k*. Such lesions explain those cases in which there is absolute anæsthesia on one side of the body, with sensation on the other side for impressions coming from both sides. They also show, as Obersteiner asserts, that anæsthesia is not a necessary concomitant of allochiria.

In the only case of allochiria in which a post-mortem examination has been made, and to which I have already alluded, Obersteiner found, among other abnormal conditions, disease of both posterior horns of gray matter. The morbid process was not continuous, as it is stated that it was not perceived in all the sections. It was situated at the narrowest part of the posterior horns, being so placed as to interrupt the decussation of all the nerve fibres, and hence to cause the transmission of sensory impressions upward in the side in which they entered—a condition which, equally with that I have described, would give rise to allochiria.

It is a well-known physiological fact that section of one lateral half of the spinal cord gives rise not only to anæsthesia of the parts below on the opposite side of the body,

but to hyperæsthesia of the parts below on the same side. This circumstance, which has not hitherto been explained, is, I think, satisfactorily accounted for by the theory I have proposed. For the parts below, corresponding to the cut half of the cord—for example, the right—not only remain in undisturbed relation with their proper cortical centre in the left hemisphere, but this latter receives also the sensory impressions coming from the left side. There will therefore be increased sensibility in the right side. Numerous facts in morbid anatomy and pathology could readily be brought forward in support of this view.

This explanation of the cause of crossed hyperæsthesia is different from the ingenious one of Ott,¹ though probably not irreconcilable with it.

Stated Meeting, Feb. 6, 1883.

Dr. S. N. LEO read a brief paper entitled "Presentation of patients trephined for epilepsy."

Henry S., peddler, aged forty years, native of Poland, single; had no less than fourteen characteristic epileptic fits within four hours, with continuous convulsive twitchings on the right side. But little could be gleaned from him or his previous history then, though he gave me to understand that he had terrible pain on the left side of his head, almost circumscribed to an angle between the squamous and coronal sutures, slightly above the former; and a friend volunteered the information that it was all due to a blow, which had been inflicted by a companion with a heavy stick, some four years prior, and which the sufferer claimed in his few lucid intervals, caused his trouble. European physicians of pronounced eminence said it was a singular but incurable case, and had prescribed a variety of treatment, which only afforded temporary relief. The pupil on the left side was dilated, while that on the right was contracted. There was no swelling or change over the supposed site of injury, excepting a slightly abraded surface about half an inch in circumference, uncovered by hair, and where, it was stoutly maintained, he had received the blow previously mentioned. There was ptosis of the left eyelid, loss of power in the left hand and leg, slight paralysis of vesical and

¹ *Journal of Physiology*, vol. ii, No. 2.

sphincter muscles, labored respiration, and with great difficulty could food be swallowed. The heart's action was irregular, and as the same state of affairs had continued, on and off, without any amelioration for nearly three days, I trephined within the ensuing twenty-four hours, under the most adverse circumstances. An anæsthetic was administered with caution, after which a small trephine was employed.

The operation lasted thirty minutes, the wound being carefully dressed ; the man had but one attack that evening.

The next day he felt much better ; *no fits*. On the third day following the operation had but a slight attack, sight improved, regained control of all his muscles, spoke rationally, pain in the head all gone, and from that time on continued to mend, and with the exception of a troublesome facial neuralgia, extending over the whole right side, did well, and he eventually resumed his business.

Lawrence W., aged twenty-five ; married ; U. S. ; cigar-maker. Admitted August 5, 1882, to Charity Hospital.

When about thirteen years old was struck in the back of the head with a brick ; he fell upon the car-track stunned, and remained insensible for some time. Epileptic attacks occurred when he was about nineteen.

Patient has no premonition ; utters a prolonged cry ; head turns to the right, and backward. Convulsion is limited to right side of face and neck and right arm. Is of short duration. Bites tongue and cheek. Recovers with a start as if surprised. All his attacks have been the same in character.

First day of admission, Saturday, had twenty-six fits in about twelve hours ; while in the reception office had four. Thirty-four fits Sunday night. Monday, had sixty-seven fits. Tuesday, total number of fits, one hundred and ninety. Wednesday, total for the day, one hundred and forty. Thursday, frequency of fits slightly abated ; slept very little ; always waking in a convulsion ; cried repeatedly. Head carefully examined at seat of injury, where he now complained of pain ; some roughening was found, and it was determined to trephine, as there were concomitant symptoms of compression (most probably from effusion).

At this time patient could not repeat any word distinctly, except monosyllables, and could not swallow but very little. The greater part of food taken into the mouth was regurgitated ; bowels moved regularly every day ; urine passed, without exception, examined and found normal. (Alkaline reaction.)

Friday, 11th.—Up to two o'clock had nineteen fits.

In the presence of Dr. Seaman, Chief of Staff, and several other physicians, I proceeded to operate, Dr. O'Brien having etherized the patient, when I raised a V-shaped flap, removed a disc about one inch in diameter at a point one and one half inches backward and upward from the right mastoid process, and over the squamous ridge of the temporal bone. There was but a moderate amount of hemorrhage easily controlled; serous exudation external to the dura mater was noticed, and permitted to flow off. Abundant evidence of an organized inflammatory process, that had doubtless given rise to the chain of symptoms, was observed, and which, if unchecked, unquestionably would have gone from bad to worse. Operation lasted forty minutes; patient shortly recovered from the anæsthetic, and conversed; dressings of carbolized cloths applied; clothes changed, and the man fell into a slumber, which lasted nearly four hours; awoke in another convulsion; during the night slept considerably; had seven more attacks; total eight.

Sunday, 13th.—Treatment continued; reapplied dressings; complains of no headache or untoward symptom; bowels moved. Temperature 99°, pulse 96, six P.M. Twitches in face same side as operation. *Had no fits to-day.*

Friday, 25th.—Is very well to-day, except slight diarrhœa. From this time on the patient has made good progress, and for some months has resumed his occupation of cigar-making.

Judging by these two cases, it would seem that in subjects who suffer from numerous severe epileptic attacks or convulsions, where there is a direct irritation of the brain, depressed fracture, intra-cranial effusion, or other causative influence producing a compression, they should be trephined, especially if, after an extended trial of medication, no appreciable benefit is derived.

Dr. LEALE inquired how many attacks had occurred subsequent to the two instances of operation reported.

Dr. LEO replied that in the first instance two years had elapsed since attacks, and in the second three months.

Dr. L. C. GRAY thought that though the attacks had ceased the epileptic habit might yet remain.

Dr. PUTZEL asked how Dr. Leo accounted for the serous fluid that he reported as existing in each instance between the bone and the dura mater.

Dr. LEO thought that it probably was an inflammatory product; in the first case it escaped with a gush as soon as the bone had been perforated; it was yellow in color, and certainly exterior to the dura mater.

Dr. PUTZEL thought that serous fluid in this locality was very rare,

Dr. GRAEME HAMMOND referred to a case operated upon by his father, Dr. Wm. A. Hammond, in which no recurrence of the attack had appeared up to the present time, a period of five or six years.

Dr. LEALE related an instance where trephining had been performed in the case of a young girl who had been subject to frequent attacks of "fits," and in which the immunity to attacks had now lasted to his knowledge for one year.

Dr. MORTON remarked that the question of the length of time during which the patient enjoyed immunity to the attacks after the operation, was an important point in the reports of these cases. For instance, he recalled assisting Dr. Hammond some years since in an operation upon a confirmed epileptic where attacks were evidently due to traumatism. [The patient had been struck on the head by an ice-pick.] The cutaneous cicatrix offered a clear guide to the locality for operating. The button of bone removed showed merely a slight thickening, perfectly smooth on its under surface, while the subjacent dura mater appeared normal. The attacks, frequent before the operation, ceased entirely after it, and not having recurred at the end of two years, the patient was considered cured. His physician, however, had lately reported that attacks had again made their appearance, though greatly diminished in frequency.

Dr. Morton also referred to a case where he had trephined for epileptoid convulsions occurring in a recent injury to the skull from the kick of a horse. The dura was found to be ruptured and the brain injured. The convulsions ceased after the operation, but the patient died some weeks subsequently from an extensive abscess of the brain.

The discussion of a definition of insanity was postponed to a subsequent meeting.

The Society then adjourned.

Stated Meeting, March 6, 1883,

Dr. WM. A. HAMMOND read a paper upon "Katatonia."

Dr. SPITZKA read a paper on "A Classification of insanity."

Nominations of officers for the ensuing year were as follows:

For President, William J. Morton, M.D., and L. C. Gray, M.D.; for Vice-President, V. P. Gibney, M.D., and L. Weber, M.D.; for 2d Vice-President, W. H. Farrington, M.D.; for Recording Secretary, C. L. Dana, M.D.; for Corresponding Secretary, M. Putnam Jacobi, M.D.; for Treasurer, E. C. Harwood, M.D.

The meeting then adjourned.

Annual Meeting, April 3, 1883.

The election of officers for the ensuing year was the only business transacted. The following officers were elected: President, William J. Morton, M.D.; 1st Vice-President, L. Weber, M.D.; 2d Vice-President, W. H. Farrington, M.D.; Recording Secretary, M. Josiah Roberts, M.D.; Corresponding Secretary, M. P. Jacobi, M.D.; Treasurer, E. C. Harwood, M.D.; Councillors, Wm. A. Hammond, M.D., E. C. Seguin, M.D., T. A. McBride, M.D., R. Birdsall, M.D., G. W. Jacoby, M.D.

Dr. MORTON presented a resolution to the effect that an official report of the transactions of the Society at its monthly meetings should be made and furnished to medical journals. This resolution was seconded and referred to the Council.

The Society then adjourned.

TUBERCULAR CEREBRO-SPINAL MENINGITIS.*

By J. T. ESKRIDGE, M.D..

PHYSICIAN TO ST. MARY'S AND JEFFERSON MEDICAL COLLEGE HOSPITALS.

In the year 1768, Dr. Robert Whyt, of Edinburgh, in a small brochure, described the most common form of acute hydrocephalus, directing attention to the connection between acute inflammation of the meninges of the brain and dropsy of the ventricles. ("Observations on the Dropsy in the Brain," 8vo, Edin., 1768.) About half a century later, French anatomists showed that in the majority of the cases of Whyt's disease, the membranes of the brain themselves are the seat of tubercular deposit. ("West on the Diseases of Infancy and Childhood.") In the year 1825, Marshall Hall described the hydrocephaloid disease. Soon to his accurate observations were added those of Gooch and Abercrombie. In this disease, which is also called by Watson spurious hydrocephalus, no inflammation is supposed to exist, although more or less effusion is found in the ventricles. Fine granulations on the cerebral meninges, often unattended by inflammation appreciable to the unaided eye, had been observed for a long time, but their exact nature was unknown until the year 1830, when Papavoine showed them to be tubercles. (*Journal Hebdomadaire* for 1830, vol. vi, p. 113, quoted from West.)

The literature on the subject of tubercular cerebro-spinal meningitis is exceedingly meagre, many writers on tubercular meningitis not alluding to it. Dr. Samuel Jones Gee (Reynolds' "System of Medicine," edited by Hartshorne)

* Read before the College of Physicians of Philadelphia, April 4, 1883.

states that he has several times examined the cerebro-spinal opening *in situ*, and has always found the membranes about it perfectly healthy. The spinal subarachnoidean space was distended with fluid, especially around the cauda equina. He never observed any other morbid condition within the spinal canal in persons dead of tubercular meningitis. It must be remembered that he examined the cord in a minority of cases.

About the year 1869, three observers, MM. Magnan, Hayem, and Lionville, published almost simultaneously cases of tubercular cerebro-spinal meningitis, giving as their opinion, that tubercles occurred at the same time in the membranes of the brain and cord. The special signs that they attributed to this disease were: tremblings, contractures, tossing, restlessness, tetanic seizures radiating to the neck and trunk, and temporary paralysis. Their autopsies revealed lesions of the cerebral membranes, and granulations on the surface of the spinal pia mater and on the arachnoid. Once the dura mater was most affected and fibrinous exudation was present. (*Le Progrès Médical* for 1881, Galliaux.)

Flint ("Practice of Medicine," fifth edition, p. 702) says: "Tuberculosis of the pia mater of the spinal cord has been found in many instances, and, probably, is the rule." He, however, does not appear to have met with a case in connection with tubercular meningitis.

Huguenin in his elaborate article on tubercular meningitis (Ziemssen's "Cyclopædia of the Practice of Medicine," vol. xii, p. 505) disposes of this disease in the cord in one short paragraph, as follows: "Our knowledge here is quite fragmentary. It is certain that tubercles are found in the spinal cord in many cases of tuberculosis of the pia, and also that their behavior is the same as in that of the brain. The inflammatory affection of the pia seems to pass down a varying distance within the canal. There are no trustworthy statements as to the changes of tissue in the spinal cord; but without doubt many symptoms would, after a more careful investigation of this subject, appear in an entirely different light from that in which they do now."

In the "Transactions of the Pathological Society of Lon-

don," in vol. ii, Mr. Shaw reports a case of tubercles of the brain, and of the spinal marrow and its membranes. The patient was paraplegic, but conscious to the last. In vol. xxi, of the same transactions, Dr. Walter Moxon reports miliary tubercle of the spinal dura mater occurring in a case of tubercular meningitis. The patient was a girl, æt. seventeen years. Duration of the disease was seventeen days.

In the "St. George's Hospital Report" for 1879, fifty cases of general tuberculosis are analyzed. In a large number of these brain lesions were found, but in only one instance was the spinal cord or its membranes found diseased. It is not stated in how many instances the cord was examined, but that spinal lesions were unsuccessfully sought for in cases of tubercular meningitis appears from the report. The case in which the spinal meninges were involved, occurred in a seven and a half months' child, male, æt. four years, of strumous diathesis and of a consumptive family. The mind was precocious and the skin dry. The disease began with cough; headache after about two weeks, when the cough almost ceased. The duration of the lung trouble was sixty-one days; of the head about forty-seven. Tubercles were found in lungs, pleura, and spleen (?); on the meninges of the brain and arachnoid of cord; and a nodule was seen on the under surface of the cerebellum.

H. Rendu (*Recherches Cliniques et Anatomiques sur les Paralysies liées à la Méningite Tuberculeuse*, "Thèse de Paris," 1873), Landouzy (*Contribution à l'Etude des Convulsions et Paralysies liées aux Méningo-encephalites Fronto-pariétales*, "Thèse de Paris," 1876), and Chateaufort (*Contribution à l'Etude de la Méningite Spinale Tuberculeuse*, "Thèse inaugurale de Paris," 1878, No. 384), in the years 1873, 1876, and 1878 respectively, added contributions to our knowledge of the subject of tubercular cerebro-spinal meningitis. (*L'Union Médicale* for 1879, Debove.)

Debove (*Le Progrès Médical* for 1879) reported a case of tubercular cerebro-spinal meningitis. The patient was a man, æt. 29, suffering from pulmonary phthisis. He suffered from severe lumbar pains and unsteadiness of gait for about two and a half months; paralysis of left leg and inability to

void his urine, three days ; paralysis of both legs, insensibility of the left and partial insensibility of the right, two days. Delirium was present for the first time about twelve hours before death.

At the autopsy tubercular granulations were found on all the membranes of the cord, most abundant on the pia mater near the anterior and posterior fissures of the cord. Congestion was intense in the lumbar region, and suppurative meningitis was most marked posteriorly in the dorsal. Tubercles were sparse and congestion slight in the cervical region. In the brain a few tubercular granulations were seen along the fissures of Sylvius, with little congestion of the meninges, without a trace of suppuration or fibrinous exudation. The cerebral substance was normal, and the ventricles did not contain an abnormal quantity of fluid.

Dr. Debove calls attention to the following facts in connection with his interesting case : First, the primary lesion was in the spine, the brain becoming secondarily affected, the reverse of what usually takes place. Second, the principal phenomena during life were due to the spinal rather than the cerebral lesion. In the first report of this case, he called it tubercular cerebro-spinal meningitis ; in his second, before the same society, a few months later, tubercular spinal meningitis.

Galliaux (*Le Progrès Médical* for 1881), after referring to the observations and conclusions of MM. Magnan, Hayem, and Lionville, gives a short account of a case of tubercular cerebro-spinal meningitis coming under his care. The patient was a man, and like that of Debove's was twenty-nine years old. He was brought to the hospital in a semi-conscious condition two days before his death. His wife stated that he had suffered from cough six weeks, and a few days before being brought to the hospital the cough ceased, and at the same time he began to suffer from fever, diarrhœa, and epistaxis, symptoms which his medical attendant had attributed to typhoid fever. Galliaux detected well advanced tuberculosis of the lungs. The autopsy revealed, in thorax and abdomen, tubercular infiltration of the lungs with small cavities at the apices, pleuritic adhesions, extensive ulcerations in the

intestines; in the brain, a normal dura mater, a pia mater presenting adhesions to the brain substance, most marked around the tuber cinerium, and on the internal surface fine tubercular granulations, most abundant in the fissures of Sylvius. No pus nor free fibrinous exudation was found. The meninges were not thickened or much congested, presenting nearly their normal transparency. Some serous fluid was around the tuber, and a similar fluid filled the lateral ventricles. The cerebral substance was soft, but presented no appreciable lesions; in the spinal canal, the dura mater was adherent to the visceral layer of the arachnoid, its blood-vessels were injected, evidences of slight inflammation were present, and fine tubercular granulations were found on its internal surface.

L. Dubar's (*Méningite Cérébro-spinale Tuberculeuse*, "Bull. Soc. Anat. de Par.," 1879, 4 s., iv, 240-243) contribution to the subject I was not able to obtain, nor were the results of the investigation of Von-Azary accessible. (Von-Azary, A.: *Beiträge zur Tuberkulose des centralen Nerven-systems der Schweine*, "Deutsche Ztsche. f. Thiermed.," Leipz., 1880, vi, 254-269.)

As the following case presents many features in striking contrast to the phenomena exhibited by those already reported, I venture to record it, with as concise history as possible, containing numerous general and surface temperature observations, in the *Transactions* of the College.

H. J., æt. sixteen months, was moderately well nourished but excitable. A superficial suppurating gland had existed on the anterior portion of the neck since the early months of infancy. The father, about thirty-five years old, a German, has a strong and sturdy constitution, and gives an exceptionally good family history. The mother, also of German parentage, is thin, anæmic, and painfully nervous. So far as she knows, her ancestors were free from phthisis and scrofula; her father and mother, about seventy years of age each, are living and well. Some of her brothers died from pulmonary consumption, apparently induced by exposure and dissipated habits.

When about ten months old, the child had an irritative fever, apparently from teething, lasting four or five days. During the

morning of April 15, 1882, about six months after suffering from the fever, it was apparently well, and spent a portion of the time in playing about the yard, but late in the afternoon it became feverish, fretful, and refused to eat. The symptoms grew worse, and I was called at noon the next day. I found undoubted evidences of alarming illness attended by great prostration. Ten or fifteen dark blotches of extravasated blood were seen on various portions of the body; the head was somewhat retracted, and the eyes were turning from side to side; temp., 103° ; pulse, 150; resp., 84. The central incisor teeth only were erupted, but the gums covering the lateral incisors were swollen and painful. These were freely lanced, and the child placed in a hot bath and given potassium bromide. Grave brain trouble was suspected. At 4 P.M., pulse, 180; resp., 96. A violent tetanic convulsion with occasional clonic movements took place during the examination. The face was extremely pale and the child thought to be dying. The convulsive seizure lasted in its worst form about one hour, during which time the little patient lay immersed in hot water. After the fit passed off, the left arm and leg remained rigid, the hand being shut and the foot extended until 4 A.M. the next day. The first evening of my attendance the temperature fell to 102.6° ; the pulse varied from 160 to 180, and respiration from 90 to 96. The hemorrhagic extravasations under the skin disappeared when the body was immersed in warm water. Beginning on the morning of the 17th with temperature of 101.5° , pulse of 160, and respiration of 84 per minute, the symptoms gradually ameliorated during that and most of the two succeeding days.

April 19th.—Morning, temp., 100° ; pulse, 118; resp., 50. It was still restless, refused to eat, cried and moaned most of the time, and slept in short naps only. 8 P.M., temp., 103.8° ; pulse, 135; resp., 84. The change was sudden, the child apparently being much worse. A cough beginning about that time was the only evidence of chest trouble. Twenty-four hours later the resonance of the apex of the left lung was noticed to be much impaired, but no râles could be detected. On the 20th the child slept a good portion of the time. From the 20th to 24th it took but little nourishment, vomited large quantities of phlegm; and incessant cough attended by large mucous bronchial râles, heard all over the chest, kept the little patient fretting. The temperature ranged from 101.8° to 103.5° ; pulse from 112 to 140; respiration from 40 to 60.

24th.—11 A.M., temp., 98° ; pulse, 120; resp., 48. 6 P.M., temp., 105° ; pulse, 130; resp., 60. From the 24th to the 29th the daily

range of temperature was from 98° to 100° – 103° , the rise being as often during the morning as the afternoon hours. The pulse varied from 130 to 140, and respiration from 68 to 70. On the 29th, when Cheyne-Stokes respiration was present, the temperature did not descend below 101° , and reached 102° at 6 P.M. In the evening, Dr. Charles K. Mills saw the case with me, and we agreed that it was probably tubercular meningitis of an irregular type, although the peculiarity of some of the symptoms made us doubtful as to the accuracy of the diagnosis.

On the 30th the morning temperature was 98° ; pulse, 116; resp., 50; evening, temp., 104° ; pulse, 170; resp., 70. The pupils were still small, the head was again retracted, and the child kept up a pitiful moan. During the afternoon, Dr. T. G. Morton met me in consultation. He thought it was a case of tubercular meningitis. Every effort was made to keep the child nourished. In the way of medication it was given the potassium iodide and bromide, and small doses of calomel, or corrosive sublimate. When the bromide failed to relieve, twenty drops of the camphorated tincture of opium were administered every hour until quiet was produced. Cold was occasionally applied to the head, and mustard, from time to time, to the nape of the neck.

May.—During the month highest axillary temperature was found on the 11th, in the morning, when the thermometer registered 105.5° ; the lowest was taken on the 1st, also in the morning, and was 95.6° . The exacerbations of fever were very irregular. On a few occasions during the month, the temperature rose to 103° to 105° , and descended to normal or below the same day; but the febrile paroxysms, however, extended over a period of twenty-four to thirty-six hours, and the lull, during which the temperature was normal or subnormal, lasted from twelve to twenty-four hours. Twice the period of heightened temperature with remissions lasted six days (from the 6th to the 11th, and the 26th to the 31st, inclusive). Only once (on the 15th, 16th, and 17th) did the temperature remain normal or below a period of three days. Throughout the month, the fever had marked remissions which were always attended by free perspiration, simulating, in this respect, malarial remittent fever. The pulse and respiration were frequent, being most rapid, as a rule, when the temperature was highest. The pulse range was from 116 to 180 per minute, being 170 on one occasion, when the temperature was only 96.5° , and frequently having a rate of 150 to 160 with a normal or subnormal temperature. The frequency of the respiration varied from 36 to 86 per

minute, the average being about 60. Those interested in a complete record of the temperature, pulse, and respiration, are referred to the tabular view of this case.

The posterior muscles of the neck were quite firmly contracted on the 5th, and remained so nearly two days. From the 1st to the 8th, the child was very restless, and required repeated doses of camphorated tincture of opium. On the 9th, it became more quiet, but semi-choreic movements of the muscles of the neck, face, and upper extremities, when it was awake, were noticed. Those movements at that time lasted parts of two days only. During the entire day, on the 11th, the child was drowsy, and could scarcely be awakened, although it had taken nothing to induce sleep the previous two days. It would drink, however, when milk was poured into its mouth. From April 16th, to May 11th, the pupils had been rather small, and often very much contracted, but subsequently to the latter date they were noticed to dilate, sometimes to their full extent, just before and during a paroxysm of head-pain. On the 14th, cough, which had been absent nearly two weeks, returned, and was more annoying than during the first attack of pulmonary trouble. Numerous subcrepitant râles, most abundant in the upper portion, were heard in the left lung. On the 14th, seven and a half grains of quinia were given in divided doses. In this daily quantity it was continued for a period of two months, with the exception of two or three days, when it was temporarily suspended. From the 13th to the 31st, the child was very restless, keeping up an almost constant cry, and apparently suffering great pain. Opium was the only thing found to give relief. On the 18th the choreic-like movements returned and continued a day or two. On the 19th, about the time that the lateral incisor teeth were erupted, the left ear began to discharge considerable non-offensive pus. The next day eight twenty-drop doses of camphorated tincture of opium were given, at hour intervals, before rest was obtained. On the 22d, when the muscles of the back and right side of the neck were contracted, ten thirty-drop doses of the same were given at equally short intervals; and on the 23d, fourteen and a half drachms, or nearly two ounces, of this preparation of opium were administered without entirely quieting the child. The discharge from the left ear, still yellow, was thinner and more offensive. It soon became exceedingly unpleasant; by the last of the month the ear ceased to discharge. Instead of the camphorated tincture of opium, morphia was subsequently employed, and gradually increased; the quantity within two weeks necessary

to quiet the child during some of the nights, being two and a half grains. During the afternoon of the 31st, the little fellow was bright, free from pain, and quite playful.

June and July.—The temperature during those months ran a less variable course, reaching 104.1° only once (June 9th), and never descending more than a degree and a half below the normal. The average temperature for the two months was about 99° . The pulse range was greater, the frequency being 180 on a few occasions, and once (July 8th) as low as 86 per minute. When the pulse was slow it became intermittent.

June 5th.—The head was again retracted, large doses of morphia being necessary to afford relief. About that time the child became very passionate, screaming, and striking at every one (except its mother) who came near it. It was conscious and rational, and would promptly answer in the affirmative when asked if it wished to be taken out in its coach.

8th.—The left ear was again discharging non-offensive, thick, yellow pus. A diffuse bronchitis with numerous mucous râles, causing great oppression in breathing, set in about that time and lasted three or four days.

On the evening of the 11th of June, with widely dilated pupils, the child began to scream, and continued to cry vigorously, manifesting other expressions of pain, four or five hours, notwithstanding four doses of one third of a grain of morphia each were administered at short intervals. The next morning it seemed to be free from pain, but was not sleeping continuously.

14th.—Both ears were discharging quantities of yellow non-offensive pus. No teeth were about to be erupted, the gums not being swollen. From the 1st to the 14th of June, the little sufferer, when not under the influence of morphia, was almost constantly screaming.

About the middle of June, it became quiet and ceased to cry except when disturbed. During the latter half of June, and the entire month of July, no anodyne was required. When the administration of large quantities of morphia were necessary the axillary temperature was only exceptionally above 99° .

19th.—A diarrhoea began and lasted a few days, the food passing through the bowels undigested.

July 1st.—I began to register the surface temperature of the head, not having ventured before because I feared the irritability and restlessness of the child would endanger the safety of the thermometers (two thermometers always being used at the same time).

On the 8th, the pulse was slow and intermittent, the stomach irritable, and the bowels loose. It was noted that the child was decidedly worse every second day, being feverish some time during the twenty-four hours on alternate days. The fever always passed off by free perspiration. During the month the little patient seemed to improve, and it was taken into the open air every clear day, and sometimes into Fairmount Park during the early morning hours.

August.—From the 1st to the 15th, the child was quiet, and did not fret when left undisturbed, the temperature ranging from 97.5° to 99.5° .

On the afternoon of the 16th, it suddenly became convulsed, was rigid, and remained in this condition about ten minutes.

18th.—There was some twitching of the muscles of the extremities, especially of the hands and feet. The breathing was the Cheyne-Stokes variety. One forty-eighth of a grain of morphia was required to relieve pain, it being the first day that an anodyne had been necessary since June 1st, a little more than two months. Increasing quantities of morphia were required almost daily the remainder of the month, the child being feverish and restless every afternoon, and frequently screaming violently from head-pain. The range of temperature for the last eight or ten days of the month was from 100° to 102.5° .

On the 25th, 26th, and 27th, Cheyne-Stokes respiration, minus the intermission, was present; and on the 28th, typical Cheyne-Stokes breathing lasting one day only.

September.—My notes of the case for the 1st, 2d, and as late as 4 P.M. of the 3d instant, show a normal axillary temperature, and fairly good pulse and respiration, but the surface temperatures of the head at the 4 P.M. examination of the 3d were 1° higher than the axillary. After having been comparatively quiet for nearly two months, and resting well during the previous two days, it began to cry with apparent head-pain. The pupils were widely dilated. It screamed furiously, and almost immediately, while the thermometers were still on the head, became convulsed. At first every muscle appeared to be rigid, the posterior muscles of the neck and those of the back being most contracted, and producing an extreme condition of opisthotonus. The eyes rolled from side to side, and a few spasmodic movements of the muscles of the body took place. The spasmodic seizure lasted about half an hour, but the leg muscles remained rigid much longer. Respirations were 68 and the pulse 130. At 9 A.M. the next day it

had another convulsion, which soon passed off, leaving a number of muscles contracted. At 10 A.M., I found the muscles of the back of the neck, and the flexors of the legs and arms, and the extensors of the feet, firmly contracted. Twitching of the facial muscles took place occasionally, each spasmodic contraction of these muscles being attended by a scream from the child indicative of great suffering. Temp., 103.5° ; pulse, 148; resp., 16. The head temperatures were a half degree below the axillary. The axillary and head temperatures continued to rise until the former reached 104° and the latter 103.5° . The condition of the muscles remained nearly the same during the day, except those connected with the eyeballs, which became more affected, and kept up a continuous nystagmus. The respirations became very slow and irregular, the pause often being from ten to fifteen seconds in length. 10 P.M., temp., 103.5° ; pulse, 140; resp., 8. Numerous bronchial râles were heard throughout the chest. During the next two days the temperature varied from 102.5° to 103° ; pulse from 140 to 150, and respiration from 28 to 34. The spasmodic movements of the facial muscles ceased, the back muscles of the neck and the flexors of the arms relaxed, but the adductors of the legs and the extensors of the feet remained contracted, and so continued gradually increasing until the death of the child, nearly three months later. The following week the temperature ranged from 97° to 100.5° , the average being about 99° . The axillary temperature was frequently lower than the surface temperatures of the head. The breathing was of the Cheyne-Stokes variety once or twice, and on a few occasions it was slow and irregular. The head was retracted about one half the time, that condition always being associated with symptoms of pain, irritability, and heightened general and surface temperatures. Small doses of morphia (one fourth to one eighth of a grain) were sufficient to quiet the child.

13th.—10 A.M., temp., 93.8° ; pulse, 96; resp., 14. The head temperatures were about 5° higher than the axillary. After that date, to maintain the body heat, it was necessary to have bottles filled with hot water, and to keep them constantly applied to the extremities. The remainder of the month the temperature did not descend below 95° . The deformity of the legs and feet became more marked. The legs were forcibly crossed near the body, and the feet were extremely inverted and extended. A straight line drawn from the anterior surface of the knee to the upper surface of the tarso-phalangeal joint of the great toe passed

through the instep, and one drawn from the popliteal space to the under surface of the same joint of the toe just touched the under surface of the heel. The child was peevish and fretful most of the time. An afternoon rise of temperature was the rule.

On the 28th, the biceps muscle of the right arm was noticed to be contracted. The next day it was more flexed, and the pulse was intermittent. The head became so much retracted about the latter part of the month that deglutition was very difficult. To relieve that condition an issue was established by means of Vienna paste over the upper portion of the cervical spine. After this the head was rarely retracted, and then only to a slight degree.

October.—The general condition of the child continued about the same, the right arm still being flexed. On the 6th, the left arm was first noticed to be affected, the flexor muscles of the forearm being contracted, and the hand deflected to the ulnar side. From that date the arm, like the leg muscles, continued to become more firmly contracted. The right arm was drawn in front of the chest and firmly held against it, the forearm being flexed so that the closed fist was under the chin, making it necessary to cover the hand with cotton to prevent its interfering with respiration and deglutition. The biceps muscle of the left arm was never firmly contracted, the flexors of the left forearm being mainly affected. The left hand was forcibly flexed upon the forearm, and turned to the ulnar side, the finger-nails striking the first phalanx of the thumb. The palm of each hand was padded with cotton to prevent injury by the nails. During the month the axillary temperature varied from 98° to 101.2° , the average being nearly 100° . The head temperatures were a little lower than the axillary. On the 10th, both eyes were turned to the left, and occasionally moved spasmodically downward and far over toward the left side. The eyes remained deflected toward this side, but at times they were nearly straight. Spasmodic movements of the eyes in various directions were noticed when the child suffered much pain. More or less morphia, sometimes a grain in the twenty-four hours, was required the greater portion of the time. From the 18th to the 29th, respiration was of the Cheyne-Stokes variety, the child being restless and suffering pain most of the time. Occasional spasmodic twitchings of various muscles of the body were noticed, those of the face and arms being most affected. The clonic, spasmodic movements seemed to be caused by increased cerebral irritation, and were almost invariably followed by screams from the little sufferer. At those times the permanent contractures were

worse. On the 24th, two grains of morphia were given before pain was relieved. The child had been noticed to stare meaninglessly for several days, but it was not found to be entirely blind until the 29th. At that time an ophthalmoscopic examination of the fundus of each eye showed both optic discs to be very white, and apparently slightly swollen.

November.—The first twenty days of the month the child was comparatively quiet, ate well, seemed to gain some flesh, and was generally quiet without morphia. During that period it was most irritable the 3d and 11th, but it did not have much rise of temperature on those days. The child was worse every second day.

21st and 22d.—There were numerous bronchial râles, but no fever, the breathing seeming to be a little more labored than usual.

23d.—Temp., 98° ; pulse, 108; resp., 28. Large bronchial and subcrepitant râles abundant.

24th.—10 A.M., temp., 96.7° ; pulse, 130; resp., 40. 6 P.M., temp., 99.6° ; pulse, 140; resp., 52. Impaired resonance posteriorly; crepitant and subcrepitant râles were observed.

25th.—10 A.M., temp., 101° ; pulse, 160; resp., 80. Marked dulness was found over the lower portion of both lungs posteriorly. The child took no notice of any thing, but swallowed when liquid food was placed in the mouth. 6 P.M., temp., 101.5° ; pulse, 165; resp., 92. The respiration was ascending and descending, but no intermissions, as in the Cheyne-Stokes type, occurred.

26th.—It died at 2 A.M., being able to swallow five minutes before death; no convulsions occurred. The breathing became very slow a short time before life was extinct.

Section cadaveris was made twelve hours after death by Drs. C. K. Mills, I. E. Roberts, and myself.

Rigor mortis was just beginning; skin was rough, wrinkled, and very thin. There was great emaciation, the subcutaneous fat having been entirely absorbed. When the child was one year old it weighed twenty-five pounds, but after death, the age being about two years, its weight was only eleven pounds, although its height was probably greater than that of most children of the same age.

Head.—Circumference, twenty inches; transverse arch (from mastoid to mastoid), fourteen inches; right half of arch to sagittal suture, six and seven-eighths inches; left half, seven and one-eighth inches. The head did not seem greatly enlarged. All the

bony sutures had closed externally except at the junction of the coronal and sagittal. The skull-cap was so thin and yielding, bending like bonnet-board before the saw, that much care had to be exercised in its removal to prevent injuring the brain or its soft coverings. The dura mater was not more adherent to the bone than is usual in children of one or two years of age, except along the line of the sagittal suture, where it became necessary to sever its connections with the bone by the use of considerable force, aided by the knife. After the skull-cap was removed, all the sutures were found to be closed internally. The internal surface of the bony cap was smooth, the bones being very transparent, and measuring in the temporal regions from one fortieth to one thirty-secondth of an inch in thickness, and in other situations from one twelfth to one eighth of an inch. The dura mater was thin and pale, and its sinuses were nearly empty, containing no clots, and but little blood. The pia mater on the convexity of the brain was so attenuated and transparent that it was difficult to distinguish its presence. The various fissures, primary and secondary, could be traced without removing this membrane. The pia mater over the orbital surfaces of the frontal, the basal surfaces of the temporal and occipital lobes, presented the same attenuated, transparent appearance seen on the convexity. The membrane covering the anterior and posterior subarachnoidian spaces on first exposure seemed to be opaque, but on cutting it a serous fluid escaped, leaving it of the usual appearance. A few millimetres to the left of the optic chiasm, two yellowish-white spots, about one eighth of an inch in their greatest dimensions, were seen in the substance of the pia mater.

The convex surfaces of both hemispheres of the brain on palpation gave decided fluctuation. On cutting into the lateral ventricles, they were found filled with a colorless watery fluid. The bodies and horns of these ventricles were enormously dilated. The foramen of Monro, the third and fourth ventricles, and the Sylvian aqueduct were enlarged to about two or three times their normal dimensions. On examining the walls of the lateral ventricles and their much dilated horns, prominent veins could be seen everywhere forming beautiful arborescent appearances. The veins of the intra-ventricular striate bodies, the veins of the choroid plexuses, and the veins of Galen themselves, were enlarged and prominent. The ventricular fluid measured fifteen ounces. Measuring from the anterior extremity of the anterior horn to the posterior extremity of the posterior horn, the greatest length of

each lateral ventricle was six and a quarter inches. Both ventricles appeared to be dilated equally. The thickness of the brain substance constituting the walls of the lateral ventricles was measured at several points. It was thinnest in the region bounding the dilated posterior horn, within and below, where it measured about one sixth of an inch. Sections through the gray and white matters showed no punctæ vasculosæ, the brain-substance throughout being markedly bloodless. It was firm and cut cleanly, not adhering to the knife.

The cervical and upper dorsal portions of the spinal cord and its membranes presented nothing abnormal on macroscopic examination.

Thorax.—No pleuritic adhesions or effusions. The smaller bronchial tubes were nearly filled with muco-pus. The lower and posterior portions of the lungs were œdematous and congested. The apices of the lungs were firmer than normal, and in the right apex a small cicatrix and several little nodules. The heart was very small but apparently normal. The abdominal organs were not examined.

Parts of the brain and the cervical portion of the spinal cord and their membranes, and a small piece of the apex of the right lung, were properly hardened and sent to Dr. L. Brewer Hall, a practical microscopist, for examination. The results of his examinations he gives as follows :

“Sections of the spinal cord and membranes show oval masses of rounded cells along the vessels of the *dura mater*, lying chiefly outside their walls. In some places the coats of the vessels are thickened ; the nervous tissue appears normal. Similar appearances are occasionally seen in the membranes of the brain ; many sections, however, show nothing abnormal. In the apex of the lung there are minute inflammatory spots, visible in some of the sections only. Parts of these consist of rounded cells about and within a bronchus, but others are surrounding blood-vessels and not encroaching upon their calibres.

“The pathological condition is tubercle, chiefly of the membranes of the spinal cord, less abundant in the meninges of the brain, and rare and small, though present, in the lung.”

In the history of the case which I have given in detail to-night, periodicity of temperature, attended by numerous exaggerated symptoms of brain disturbance, was well marked.

During these periods, in which the case ran a less acute course, a slight exacerbation of fever was noticed nearly every alternate day. After the first few weeks of the disease, when the fever began to reach its highest points, the paroxysms of fever, headache, and restlessness varied from a few hours to one or two days. The fever invariably passed off by a free perspiration. On some days the fever was of the remittent type, and on others, of the intermittent. I have frequently observed a striking similarity between the temperature variations of malarial fevers and those due to brain diseases; but in no instance have I seen the temperature of the latter diseases resemble that of the former when the membranes or cortical substance of the brain was uninvolved by disease. Fevers of cerebral origin differ from those of malarial poisoning, in that the paroxysms of the former are less regular in their occurrence and duration, and are not so easily prevented by large doses of quinine; although in the case reported in this paper, large daily quantities of quinine seemed to prevent excessive rise of temperature, and apparently lessened the frequency of the paroxysms.

During the first few days of the child's sickness, the diagnosis was between spurious hydrocephalus, acute meningitis, tubercular meningitis, and sporadic cerebro-spinal meningitis; later, between the last two and chronic hydrocephalus. A careful study of the morbid anatomy of this case, however, discovers no lesion that is not found in one or more of the above diseases, yet the clinical history, when taken in connection with the varying records given by the body and head temperatures, shows the disease to be possessed of a certain individuality, which, with a number of carefully studied histories, we might be able to recognize.

The quantities of morphia, two or three grains in twenty-four hours, which were given to a child less than two years old without producing death, seem almost incredible. At first, twenty drops of camphorated tincture of opium were sufficient to quiet the child for a short time, but this preparation of opium was gradually increased until about

two ounces were necessary for twenty-four hours. In the same way morphia was increased as toleration was established, the maximum quantity only being reached after regularly giving the drug a number of weeks. After having discontinued the use of morphia two months, the return of head-pain compelled me to again resort to it. This time, also, small doses were at first sufficient to quiet the child, but in the course of a few weeks one third to one-half grain doses were required. While large doses of opium were being administered, neither diarrhœa nor vomiting were present.

The extraordinary duration of the tubercular disease of the cerebro-spinal membranes, in this case, extending over a period of nearly eight months, simulated rare cases of sporadic cerebro-spinal meningitis, which may, also, after further investigation, be found to be tubercular in their nature. Ordinary cases of tubercular meningitis run their course in from two to four weeks. A few have lasted about ten weeks. There is, however, on record, one rare case of tuberculosis of the cerebral membranes ("St. George's Hospital Report" for 1879), in which the head symptoms were of twelve months' duration. The patient was a man, thirty-five years old, admitted into the hospital a few hours before his death. The man and his wife stated that the affection had begun suddenly twelve months before, with embarrassment of speech and deglutition. Failure of the sight, with severe cough and wasting, was of six months' date. "On admission, the symptoms were general weakness of the limbs, the arms in particular moving with jerking action, and requiring concentration of thought to influence them at all; loss of power of deglutition, during attempts at which the head was turned around to the right; inability to protrude the tongue; complete anæsthesia of the soft palate; indistinctness of speech, the vocal cords seemingly partially paralyzed; dulness of vision, ptosis, frowning of the forehead, sluggishness of the pupils, and drowsiness; but no derangement of mind." The post-mortem appearances were: "A few tubercles in the arachnoid on the convexity of the brain; a little lymph

in the interpeduncular space, without tubercle; the medulla and its nerves normal; left kidney small." The case I have just quoted, when taken in connection with the one reported in this paper, is particularly interesting on account of its long duration, decided motor disturbance of cerebral origin, and the slight lesion found in the arachnoid of the brain, the spinal cord apparently being uninvolved. The long duration of the case I have reported to-night may, I think, have been due to tubercles being very sparsely scattered on the membranes of the brain and cord, without any other organ becoming sufficiently affected to endanger life.

In cases of tubercular cerebro-spinal meningitis are the paralysis and rigidity of spinal or cerebral origin? H. Rendu (Debove, *Le Progrès Médical* for 1879) says: "I think I am authorized in concluding that the existence of tubercular granulations on the spinal meninges have only a purely anatomical interest, and that their value, in a clinical point of view, has been, perhaps, exaggerated."

In Debove's case (*Ibid.*), the chief symptoms were due to the spinal lesions, which were most marked in the dorsal and lumbar regions. And in the one related by Chateaufort (*Ibid.*), the spinal symptoms were first, and in the forefront. The patient was suffering from advanced pulmonary tuberculosis. A few days before his death he felt a sharp pain in the spine radiating to the lower limbs. Marked rigidity of the trunk was present, and finally delirium and paralysis. In the case of the child attended by me, the lesions of the spinal membranes were greater than those found in the cerebral meninges.

"Rendu (A. McL. Hamilton, "Nervous Diseases," 1881; Review in *Gaz. des Hôpitaux*, Jan. 15, 1873) affirms that whenever there is paralysis of permanent form there must be some obliteration from fibrinous exudation and consequent softening, and he does not believe that scattered granulations or ventricular effusion are alone sufficient for its causation." Ventricular effusion, as seen in chronic hydrocephalus, especially, is not usually attended by rigidity of the muscles of the extremities. The pathological lesions dem-

onstrated by different observers of tuberculosis of the nervous centres abundantly prove that paralysis or contractions of a permanent character may result from lesions in the spinal cord or brain, or in both. In my case there was no paralysis, although a large quantity of fluid filled and distended the ventricles, probably because, as contended for by Rendu, no lesions of softening existed. The rigidity in this case may be accounted for by the comparatively sudden ventricular effusion, which apparently took place, a few months before the child's death; the brain being thus crippled, its inhibitory influence over the cord was lessened, and the latter nerve-centre kept up a constant muscular contraction. What I think is a more plausible explanation of the condition, is found in the presence of scattered tubercle, attended by inflammation, in the membranes of the brain and cord. Tubercles were few in both situations, but most abundant in the membranes of the medulla, the very centre of reflex actions.

The macroscopical appearances of the brain and cord and their membranes were those of great anæmia of the parts. Nothing suggestive of tubercle or even inflammation, save two small yellowish nodules at the left of the optic chiasm, was seen. Many of the microscopical sections, also, showed neither tubercular nor inflammatory lesions. It is evident from a careful study of this case that examinations must be most careful and thorough before giving a negative opinion in regard to the presence or absence of tubercles or of inflammation of the membranes of the brain and cord.

The pulse frequency of the case reported to-night, like that of tubercular meningitis, divides the disease into three unequal stages. The first stage was of five months' duration, during which the pulse was very rapid, being, on the average, about 130 to 135 per minute, but frequently reaching 160 to 170, and on a few occasions 180. The second stage was one month long, the pulse ranging from 76 to 120, the average being about 100. The last stage extended over a period of about one and a half months, the pulse being again rather rapid, from 104 to 148, the average being about

130. During the early part of the disease respiration was most rapid when the pulse was most frequent; but later, slow respiration (8 or 10 per minute) was accompanied by rapid pulse (140 to 144).

Irregularity and sudden changes were well shown by the axillary thermometric records. On May 1st, the temperature fell from 104° to 95.6° , or 8.4° in twelve hours; and three days later, from 105° to 96.5° , or 8.5° in about the same length of time. Diurnal variations of temperature from 4° to 6° were common. The temperatures in each axilla were compared sixty times; in five of these the left axillary heat exceeded the right from $.1^{\circ}$ to 1.8° , the average difference being $.5^{\circ}$; the temperatures were equal eight times, showing the right axilla to have been warmer than the left forty-seven times, the difference varying from $.1^{\circ}$ to 1.8° , the average being only $.3^{\circ}$. Part of the variation, I think, may be accounted for by the difficulty we encounter in keeping children quiet while registering their temperatures.

Cerebral Thermometry.—From my paper which I read before the College, May 3, 1882 (Report of Three Cases of Abscess of the Brain), I quote the following: "Dr. Gray found the average normal temperatures of the stations on the side of the head to be for the frontal $.65^{\circ}$ F., for the parietal $.86^{\circ}$ F., for the occipital $.72^{\circ}$ F., higher than those of the corresponding stations on the right side. He gave as the average normal temperature of the right frontal station 93.71° F., of the left 94.36° F.; of the right parietal 93.59° F., of the left 94.44° F.; of the right occipital 91.94° F., of the left 92.66° F. Variations of more than 1.5° he considered suspicious of disease at that point, and of more than 2° strong evidence of a pathological condition."

Dr. J. S. Lombard published in book form, in 1879, the results of upward of 60,000 observations on the regional temperature of the head made by means of the thermoelectric apparatus. ("Experimental Researches on the Regional Temperature of the Head," etc., by J. S. Lombard, M.D.) His averages of temperatures of the different regions of the head are:—

Average Temperature.

	Anterior region.	Middle region.	Posterior region.
Right side,	92.942° F.	92.073° F.	92.343° F.
Left side,	92.825	92.114	92.267
Both sides,	92.883	92.093	92.309

He says that "higher values, especially for the anterior, are more frequently met with in ordinary examinations; but it is extremely difficult to arrive at satisfactory conclusions as to average absolute temperature from observations made upon individuals while engaged in the ordinary avocations of life, the results thus obtained being very variable. Under such circumstances, a temperature of 95.36° F. for the anterior region; one of 94.1° F. for the middle region; and one of 93.56° F. for the posterior region, would probably represent more correctly, in the majority of cases, the highest absolute temperatures."

It will be seen by Lombard's conclusions that the temperatures of the anterior and posterior regions are higher, and that of the middle region lower on the right than on the left side of the head. In a later work by the same author ("Experimental Researches on some Points Relating to the Normal Temperature of the Head," by J. S. Lombard, M.D., 1880), it is stated that: "It was found in these experiments, among the results, that every one of the small divisions of the surface of the head might be hotter on the right side or on the left side in turn, and also that many of them showed at times equality of temperature of the two sides."

In numerous observations made by myself on cerebral temperature of persons in health, and of persons suffering from general febrile conditions, the right side of the head has been found, in many instances, slightly warmer than the left. When surface thermometers are employed to register the heat of the head in disease, I think, if we take the "highest absolute average temperatures" of Lombard for comparison, we shall be less likely to come to erroneous conclusions. If we take, then, the comparatively high temperatures, 95.36° F., 94.1° F., and 93.56° F., for the normal heat of the anterior, middle, and posterior regions of the head

respectively, we shall find, when we compare them with the results of the numerous temperature observations made on the patient whose case is reported in this paper, that much of interest, and, probably, of clinical value, may be derived by a careful study of cerebral thermometry in these cases.

The results of the local thermometric records in this case may be thus summed up :—

The surface temperatures of the head and of the upper posterior cervical region were registered on ninety-seven different occasions, during which four hundred and eleven surface-temperature observations were made on these parts. The cerebral temperatures exceeded the axillary forty-six times ; that of the axilla was higher than the head temperatures forty-seven times ; and the temperatures of the head and axilla were equal four times.

Once the temperatures in the axilla and over the upper cervical region were equal ; four times the temperature of the latter region fell below that of the axilla, varying from $.1^{\circ}$ to 1° ; twenty-four times the heat of the upper cervical region exceeded that of the axilla, it having been on one occasion as much as 3.4° above it. The temperature in the upper cervical region was usually greater than that of the head, it having been higher nineteen times out of twenty-nine.

Of the forty-six times that the head temperature was greater than that of the axillary, the heat of the latter region was subnormal sixteen, normal eleven, and above normal nineteen times. Of the forty-seven times that axillary temperature exceeded that of the head, the thermometer in the axilla registered subnormal seven, normal ten, and above normal thirty times.

The lowest head temperature found was 95.8° , the axillary heat at that time being 97.8° . The highest head temperature registered was 103.5° , the axillary being 104° . The lowest axillary temperature recorded was 93.8° , the cerebral temperature, at the same time, standing at 98° . The highest temperature found in the axilla, at the time of registering the head temperatures, was 104° , the surface thermometer on the head at the same time rose to 103.5 . Once the head

temperature was 4.2° greater than the axillary, but the heat of the axilla never exceeded that of the head more than 2° .

The average temperature of the axilla, of the various regions of the head, and of the upper cervical region, are as follows:—

Parietal station.	Rolandic station.	Posterior frontal station.	Superior frontal station.	Occipital station.
Right side 99.24°	Right side 99.27°	Right side 98.95°	Right side 98.65°	Right side 98.54°
Left " 99.24°	Left " 99.22°	Left " 98.80°	Left " 98.75°	Left " 98.28°

Middle frontal station 98.08° . Middle occipital 98.39° . Upper cervical region 98.41° . (The average temperature of the upper cervical region was slightly above those of the head and axilla, but the table shows a different average, the discrepancy appearing because the temperature was registered a limited number of times over the upper cervical region.) Axillary region 98.89° .

The head temperatures at no time descended to the normal, although the axillary temperature was either normal or subnormal forty-five times out of ninety-seven comparative examinations. The temperatures of each side of the head were nearly equal. Corresponding regions of the two sides rarely varied more than a fraction of a degree Fahr. The parietal stations were the warmest; the middle frontal station, only a little below the middle occipital, was the coolest.

If the results of the cerebral temperature observations of this case are compared with the observations made by Dr. Mary Putnam-Jacobi (*THE JOURNAL OF NERVOUS AND MENTAL DISEASE*, Jan., 1880), on a case of suppurative tubercular meningo-cephalitis, a striking difference in the height of the temperature will be found, partially confirming the conclusions that I had almost arrived at from numerous observations on cerebral thermometry, viz., that brain lesions accompanied by congestion or inflammation are attended by higher head temperature before than after suppuration supervenes.

The following conclusions may be drawn from the contents of the paper:—

1. Tubercles occur in the membranes of the brain and cord, but they are more frequently found in the former than in the latter situation.

2. Tubercular deposit may first take place in the meninges of the cord and then extend to those of the brain, although the reverse is the rule.

3. Tuberculosis of the cord, contrary to the views of Rendu, has more than an anatomical interest.

4. Tubercular cerebro-spinal meningitis gives rise to special symptoms, and by a careful analysis of a number of cases, it may be recognized.

5. It is probable that many cases of so-called sporadic cerebro-spinal meningitis, that have a duration of several months and then prove fatal, are tubercular in character.

6. Paralysis or contractions may be due to brain or spinal lesions, or to both.

7. When cerebral fever simulates the periodic manifestations of malaria, the lesion is probably in the membranes or cortical substance of the brain, or in such a position as to exert pressure upon these structures.

8. Ventricular effusion probably does not give rise to paralysis or contractions; the former motor disturbance in these cases being due to softening of motor zones, and the latter to irritation of the meninges of the brain and cord.

9. Repeated microscopical sections may have to be made in certain cases of tuberculosis of the meninges before the nature of the disease is detected.

10. Right or left side of the head may, in turn, be the warmest in health.

11. When surface thermometers are used to register the cerebral temperature in disease, the normal averages should be taken to be 1° to 1.5° higher than those given by Gray and others.

12. The head temperature in disease of the brain may equal or exceed the heat of the axilla for a length of time.

13. In cerebral lesions, the temperature of the head is not marked by those sudden variations manifested by the axillary temperature in these cases.

14. Variations of head temperature in diseases of the brain take place comparatively slowly. The tendency of the heat of the head to remain permanently above the normal, while that of the axilla is normal or several degrees below, is the strongest evidence of organic disease.

15. The thermometer and the microscope in the case reported agreed in locating the greatest inflammatory trouble in the upper cervical portion of the cord.

16. Brain lesions attended by congestion or inflammation have a higher local temperature than suppuration going on within the cranial cavity.

[After the reading of the preceding paper:—]

Dr. ROBERTS BARTHOLOW said: Since you have called on me, Mr. President, I will make some remarks on the very elaborate report which we have just heard. The impression which the clinical history makes on me is that the case if tubercular is one rather of general tuberculosis than of tubercular cerebro-spinal meningitis. It may be objected to this view that in every case of tubercular meningitis there is more or less generalized tubercular deposit. It seems to me, however, hardly logical to place so much emphasis on the spinal affection. In most cases of unquestionable tubercular meningitis the principal seat of tubercular deposit is at the base, hence the term *basilar meningitis*, parts in immediate connection with the spinal meninges. It is the more philosophical, therefore, it seems to me, to regard such cases as examples of general tuberculosis; now one set of organs, now another set, being the points selected for a special tubercular deposit. I do not, therefore, believe in the existence of any cases of tubercular cerebral meningitis, or spinal meningitis, *per se*, but in a general tuberculosis, with special implication of certain organs. Under such circumstances the symptomatology will vary with the particular functions of organs the most involved.

As regards the cerebral thermometry on which the essayist has much dilated, I beg to say a word or two. Up to the present, cerebral-temperature changes have not afforded us much information. As you are well aware, Mr. President, Lombard achieved but trifling results in his study of cerebral temperatures, although he employed the most elaborate instruments of precision now available for the purpose. Indeed, it is now well understood that the temperature of the scalp affords no certain indication, if any in-

dication whatever, of the cerebral temperature. A few years ago a physician of New York, Dr. Amidon, received a prize, and attracted no little attention, for an essay, in which he attempted to show that certain motor areas in the brain could be mapped out by the temperature changes in the scalp, induced by active exercise of the muscles in anatomical relation with these motor areas. But it was soon ascertained that the temperature changes were limited to the scalp, and that the "willed movements" do not, so far as at present known, so raise the temperature of the motor cortical centres as to change the temperature of the scalp. In fact, it is now known that the temperature of distant parts is influenced by slight excitation of the surface. Thus, Strumpf, of Dusseldorf, has shown that faradic stimulation of the skin of one member affects the heat of another member. There are numerous examples of the same kind. In this way the influence of muscular action on the temperature of the scalp is explained. We cannot, therefore, formulate conclusions in regard to the condition of the brain from observations on the heat of the scalp. The whole subject is still *sub judice*. Hence, I think it is very unsafe to draw conclusions from cerebral thermometry in the present state of our knowledge.

Dr. DA COSTA remarked that, notwithstanding the elaborate and able report of the case, he had some doubts with reference to its character. The sudden beginning was unlike that of tubercular meningitis—rather that of those instances of cerebro-spinal fever which begin acutely and may become chronic. In support of this view there was an eruption of an ecchymotic kind, in the first twenty-four hours, such as occurs in cerebro-spinal fever; there is no eruption in tubercular meningitis. Again, there was no very positive evidence of tubercle in the lung, and he thought it unlikely that a case of tubercular meningitis should have existed for months, affecting the brain and cord, and no decided tubercles in the lungs be found.

Dr. CHAS. K. MILLS referred to the fact that in a number of cases of tubercular meningitis, some in children and some in adults, some general and some localized, he had observed

eruptions differing in character; sometimes erythematous, sometimes vesicular, sometimes ecchymotic, and probably, in the latter case, due to extreme vaso-motor paresis.

He alluded also to four cases of tubercular meningitis seen with Drs. Franklin and Ott. In three of these gross appearances were present; in the fourth the appearances were similar to those exhibited by Dr. Eskridge's patient. No tubercular masses were visible anywhere, either at base or convexity, and yet the microscope revealed miliary tubercles in great abundance. These observations show the importance of not concluding that a case is non-tubercular simply from microscopic examination. Probably many of the statements of the older observers are not to be relied upon in this respect.

Dr. ESKRIDGE, in closing the discussion, said that it was probably exceedingly rare to have tubercular inflammation of the membranes of the brain or cord without tubercles occurring in other portions of the body. In pulmonary tuberculosis it was common for other organs than the lungs to be attacked. He was inclined to think that if, in certain cases, we follow the custom of locating the disease in one or more organs, those should be selected which were most early and prominently affected. In the case under consideration the early symptoms, and, in fact, those of any prominence at all throughout the disease, were due to the cerebro-spinal lesions. The point was well taken by the first speaker, as the microscope shows that most cases of so-called local tuberculosis are examples of general tubercular affections. The same speaker was also justified in questioning the claims that had been made by some observers for cerebral thermometry. Dr. E. was not yet satisfied that surface thermometers would enable us to locate lesions in different portions of the brain with sufficient accuracy for general diagnostic or therapeutic purposes. He desired to call special attention to one point in connection with his observations on the surface temperature of the head in this and other cases, viz., that a sustained high head temperature extending over a considerable period, while the axillary heat was normal or below, pointed to

organic lesion of the brain or its membranes. Again, in brain diseases, the cephalic temperature is less variable than the axillary heat in the same cases. The sudden beginning and long duration of the case the history of which he had given in detail, and the presence in it of an early eruption, was thought by the second speaker to point to sporadic cerebro-spinal meningitis rather than to the tubercular form of meningeal disease. Cases of tubercular meningitis without prodromata were the exception, but they did occur. One or two of the three cases referred to by Dr. Mills, and reported in a joint paper by himself and Dr. Ott (*Philadelphia Medical and Surgical Reporter*, July 3, 1881), were ushered in by convulsions, the previous health of the children having been good. Dr. Gee (Reynolds' "System of Medicine") says "that out of twenty-six cases of primary tubercular meningitis (the diagnosis having been confirmed by a *post-mortem* examination in all) there were only two in which premonitory symptoms had not been noticed." The long duration (nearly eight months) of the present case would class it with the curiosities of medical literature, but it was not without a parallel, for Dr. E. had quoted a case in the early part of his paper, from the "St. George's Hospital Report" for 1879, in which the meningeal symptoms extended over a period of twelve months. Other cases of tubercular meningitis that have lasted about ten weeks have been reported. The eruption referred to in his case, and thought by some to be of considerable diagnostic value in this particular instance, looked like blood extravasated under the skin, but it disappeared as soon as the child was put in a warm bath, an hour or two after he first saw it. It did not again make its appearance.

The absence of macroscopical appearances of inflammation militated, to his mind, very strongly against the supposition of the disease having been sporadic cerebro-spinal inflammation. So far as he knew, if the patient lived a few days after being seized with the last-named disease, inflammatory deposits were always apparent to the unaided eye. If it be argued that the present case lasted so long that the exudate was absorbed, he would like to know the cause of

death. Irritation was increasing, as shown by muscular contractions, etc., during the last two months of the little fellow's illness, yet at the autopsy no visible exudation was present. In rare cases of tubercular meningitis the macroscopical appearances of inflammation have not been well-marked. In one of the cases reported by Drs. Mills and Ott, no tubercles were seen. In one of tubercular cerebro-spinal meningitis reported by Galliaux, the "membranes were not thickened or much congested, presenting nearly their normal appearance." At the autopsy of Dr. Eskridge's case the presence of tubercles was not suspected by Dr. Mills or himself, and inflammation, which, during life, was thought to exist, could not be detected by any exudate. Hardened portions of the brain and cord and their membranes, and of the lung, were given to an expert microscopist who knew nothing of the history of the little patient, and he was asked to decide whether inflammation had existed. He found, as stated in his report, tubercles in portions of all the organs examined. If it were not for the microscopic revelations, which Dr. Eskridge did not feel inclined to dispute, the case he had reported to the College would have to be considered one of chronic cerebro-spinal meningitis minus appreciable exudation.

Reviews and Bibliographical Notices.

Animal intelligence. By GEORGE J. ROMANES, M.A., LL.D., F.R.S. International Scientific Series : Appleton & Co., New York.

This work is intended to be to the science of comparative psychology in particular what classification is to science in general ; it is a preliminary grouping of the data of its subject with a view to their subsequent organization as scientific doctrine. The author promises a complementary treatise on the evolution of mind, to deal from the stand-point of mental development with the generic relationships of the several orders, classes, and subdivisions of the animal kingdom.

The present work, therefore, must be valued not only for what it is, but also for what it makes possible, which we ought justly to remember in estimating our indebtedness to Dr. Romanes for this one of his many services to biology.

Being in actual scope merely a sorting of raw material, the work necessarily partakes of the anecdotal character of previous contributions to the subject, but, as will be divined, has little in common with them in aim and intention. Looking to the elevated purpose for which it has been compiled, we were especially solicitous to know the principles adopted by the author to direct him in the selection of facts, and these principles, clearly stated in the preface, we find, while not being too exclusive, are rigorous enough to prevent the insinuation of material errors.

One other purpose actuating the author was to produce " something resembling a text-book of the facts of comparative psychology to which men of science and also metaphysicians may turn whenever they may have occasion to acquaint themselves with the particular level of intelligence to which this or that species of animal attains." But without the forthcoming complementary

work this object will not be completely realized. It is not sufficient to mark the intellectual quality of mental actions by placing them in this or that empirical category. A true appraisal is possible only by first determining their position in the phylogeny of mind.

The introduction is occupied among other distinctions with the distinctions between mental and non-mental adaptive actions, and Dr. Romanes supplies a criterion which he thinks "is practically adequate, as it is theoretically legitimate."

"Objectively considered, the only distinction between adaptive movements due to reflex action and adaptive movements due to mental perception consists in the former depending on inherited mechanisms within the nervous system being so constructed as to effect particular adaptive movements in response to particular stimulations, while the latter are independent of any such inherited adjustment of special mechanisms to the exigencies of special circumstances." We differ from the author with much unwillingness, but this criterion seems to us both theoretically defective and practically inapplicable. Is reflex or non-mental action in its multiform manifestations necessarily inferior to or an incipient stage of conscious intelligence, as Dr. Romanes would appear to think from the above quotation and its context? Is it not rather that reflex action is a deeply engrained mental process, whether inherited or not; and as frequently as the reverse, that mind is reflex action in the making? The familiar instances are innumerable where conscious and purposive movements have become by repetition reflex or automatic during the life of the individual; where, then, in such cases are the inherited mechanisms? We think the author's conception of reflex action misses its essential relations as a phase of mental development.

Dr. Romanes' definition of instinct "is reflex action into which there is imported the element of consciousness. The term is therefore a generic one, comprising all those faculties of mind which are concerned in conscious and adaptive action antecedent to individual experience without necessary knowledge of the relation between means employed and ends attained, but similarly performed under similar and frequently recurring circumstances by all the individuals of the same species."

Reason or intelligence is defined as "the faculty which is concerned in the intentional adaptation of means to ends. It therefore implies the conscious knowledge of the relation between means employed and ends attained, and may be exercised in

adaptation to circumstances novel alike to the experience of the individual and to that of the species."

Apart from minor objections to the above definition of instinct, that which is here given as the most conspicuous of the differences between it and reflex action is, we think, one of the least conspicuous, because, being wholly subjective, it is beyond the range of perception. As Mr. Spencer has shown, reflex action, instinct, and reason are degrees of the same process; reflex action passing into instinct, and instinct passing into reason by imperceptible gradations. Hence the difficulties encountered by Dr. Romanes in the body of the work when phenomena have to be interpreted. In the chapter on the psychology of the rodents, the author is constrained to say of the beaver, that "there is no animal—not even excepting the ants and bees—where instinct has risen to a higher level of far-reaching adaptation to certain constant conditions of environment, or where faculties undoubtedly instinctive, are more puzzlingly wrought up with faculties no less undoubtedly intelligent. So much is this the case that, as we shall presently see, it is really impossible by the closest study of the psychology of this animal, to distinguish the web of instinct from the woof of intelligence; the two principles seem here to have been so intimately woven together, that in the result, as expressed by certain particular actions, it cannot be determined how much we are to attribute to mechanical impulse, and how much to reasoned purpose."

The only distinctions between reflex action and instinct, which would be at once scientifically valid and available in practice, are those relating to the *specialty and complexity* of the neuro-muscular adjustments.

Beginning with the lowest forms of reflex action, where the correspondences between external phenomena and the organism are few and simple, the progress is to higher and higher forms, until simple reflex action merges into instinct or compound reflex action, with correspondences many and complex. And the continuity between instinct and reason is of the same nature. Mr. Spencer remarks ("Principles of Psychology," p. 453, vol. i.) that, "the impossibility of establishing any line of demarcation between the two may be clearly demonstrated. If every instinctive action is an adjustment of inner relations to outer relations, and if every rational action is also an adjustment of inner relations to outer relations: then, any alleged distinction can have no other basis than some difference in the characters of the relations to which the adjust-

ments are made. It must be that, while in instinct the correspondence is between inner and outer relations, that are very simple or general ; in reason, the correspondence is between inner and outer relations that are complex, or special, or abstract, or infrequent. But the complexity, speciality, abstractness, and infrequency of relations are entirely matters of degree."

The reverse aspect of this ascending transition of reflex action to reason through instinct and memory, when illuminated by the facts of the volume before us, acquires fresh interest and importance. If deliberative actions frequently repeated tend to become automatic, the absence of any uniformity in the distribution of the reasoning and instinctive faculties is what we might expect. The rabbit has not the elaborate instincts or the intelligent adaptiveness of some ants, and we learn even of the Protozoa : "There is a common and well-known rotifer whose body is of a cup-shape, provided with a very active tail, which is armed at its extremity with strong forceps. I have seen a small specimen of this rotifer seize a much larger one with its forceps, and attach itself by this means to the side of the cup. The large rotifer at once became active, and swinging about with its own forceps, began the most extraordinary series of movements, which were obviously directed toward ridding itself of the encumbrance. It dashed from side to side in all directions with a vigor and suddenness which were highly astonishing, so that it seemed as if the animalcule would either break its forceps or wrench its tail from its body." If we join these special facts and others to be found in this work with more general considerations, it would seem probable that mind is from first to last of the nature of intelligence, and that reflex action and instinct are the selected products of the more constant conditions in space and time.

In the closing chapter we have interesting and able notes, by the author's sister, on the intelligence of the brown capuchin monkey, *Celus fatuellus*. The value of these notes would have been enhanced by observations on emotional expression, and if a more extensive and varied use had been made of the experimental method.

By the scientific student this work will be welcomed as an important contribution to psychology ; to the general reader it is a replete repertory of fascinating and instructive story.

C. P. M.

Electricity in medicine and surgery. By GEO. C. PITZER, M.D. First Edition. St. Louis, Mo., 1883.

This is a small book of eighty-three pages, thirty-two of which are devoted to the familiar illustrations and descriptions of "electrical apparatus," twenty to "electro-therapeutics," four to "central galvanization," five to "electrolysis," twelve to "the removal of hairs by electrolysis," six to "miscellaneous diseases treated by electricity," three to "the wrong current," and the remainder, one page, to "a word to beginners." There is, however, no table of contents to indicate these divisions of the subject.

The object of the work is "to supply a want expressed by country practitioners generally." The author has "aimed to make every thing as plain and simple as possible, so that a mere novice may, with the aid of the book, commence the use of electricity in the treatment of disease."

In the section concerning "electrical apparatus," we note a novelty in "Dr. Hathaway's electro-magnetic chair." The illustration represents a young woman seated in the chair with her feet upon an attached platform, while beneath her, on the same platform projecting backward, is a galvanic or other battery. "The object of this invention is to provide a simple and convenient apparatus for the transmission of electrical currents through all parts of the human body, and in different directions." "In using this apparatus it is only necessary that the hands and feet should be bared." "The patient sits comfortably in a chair, and when the switches are placed in proper position, the current is made to enter the right foot, pass up the right leg, cross into the left leg, and down out of the body by the left foot," and so on.

We are not surprised "that the management of this apparatus is easily learned," and that "one attendant can, without difficulty, attend to four chairs at the same time." The treatment of disease by galvanism thus administered is as much simplified as the putting out of fires in St. Louis would be simplified if, on the sounding of an alarm, the firemen should open a window on the house-top and play their stream blindly into space. They might scatter a few drops of water on the burning block—they might *not*. It is this street-corner method of pumping electricity into the human body in the trust that the agent will exhibit some peculiar selective affinity in seeking out the morbid process and curing it, that has long cast discredit upon the use of electricity

in medicine. It is only another instance of the blunderbuss charge of a bullet and some bird's shot into a forest with a view of bringing down a quail, a deer, or — nothing. The discharge pleases the doctor and the patient,—the disease remains.

This is not scientific electrization—in the present instance it is a mistake—it is often charlatanism. For if there is one fundamental canon of the electro-therapeutics of to-day, it is a *localized* treatment whether by galvanization or faradization of the part affected, involving of course a diagnosis.

What organ does the doctor treat in his chair? If he knows, why not treat it locally? In fact how can he treat it otherwise? But our words do not apply to our author alone. They apply to scores in our profession who think that it is only necessary to get the electricity into the body and to leave it to do its work there. Result : failure, scepticism, charlatanry.

We think that Dr. Hathaway's "electro-magnetic chair" had better have been left out of Dr. Pitzer's otherwise, in many respects, tolerably good little work.

We are glad to observe that our author places confidence in the treatment of some diseases by localized galvanization. He is a warm advocate of the "polar method," and in this we agree with him, wishing, however, that he had brought forward some other authority than "Dr. Tipton," "who "knows that the electro-vital fluid is at times improperly positive," etc., etc., p. 51. A reference to Erb, Onimus, Meyer, Althaus, Bartholow, De Watteville, or numerous other standard writers, would, at least, suggest that our author was familiar with the writings of his co-workers in this branch of study.

There is one good feature in the book, and that is the reports of the cases. Like all cures by electricity, some of these cures are wonderful and unexpected. But in our opinion this fact does not discredit either the observation, the observer, or the means employed. Cures of this nature have always been associated with the use of electricity, and we believe always will be, simply for the reason that such cures are within the possibilities of the agent employed.

The tendency of our times is to find out the *rationale* of these cures and to so eliminate sources of error that the agent in the hands of the trained physician shall exhibit the accuracy of the rifle in the hands of the skilled marksman, rather than the blunderbuss that we have alluded to.

On the whole, then, Dr. Pitzer has ample opportunity to work on his second edition, for there are elements of success in this one before us that will ensure a demand for a second. Our author writes well and writes earnestly ; he evidently has faith in what he writes, and this carries with it conviction. It is for this very reason that we criticise—the work is worth the words.

W. J. M.

Editorial Department.

MR. MALLOCK'S MISSING SCIENCE.*

THE study of the abnormal postulates a knowledge of the normal. Since Mr. Mallock has discovered a "missing science," we feel in duty bound to present his discovery to our readers, in order that deviations from the standard may be recorded by the psychiatrist.

Before criticising Mr. Mallock's little essay, we will try to give our readers some idea of what it is about. The author begins with an analysis of the aims, the principles, and the "pseudo-science" of modern Democracy. Having established the evil and destructive character of these things, he sets himself to show by logical argument, that the present state of social inequality, which Democrats wish to disturb, is a natural and wholesome state ; that the continuance of civilization is dependent upon it ; and that it could only be overturned by effecting a radical change—not in human institutions, but in human character. The desire for inequality is inherent in the human character ; and in order to prove this statement, Mr. Mallock proceeds to affirm that there is such a thing as a science of human character ; that of this science he is the discoverer ; and that the application of this science to the question at issue will demonstrate the integrity of Mr. Mallock's views, and the infirmity of all others. In the ensuing chapters the application is made, and at the end the truth of the proposition is declared established.

* "Social Equality, a Short Study in a Missing Science." By W. H. Mallock. (New York : Putnam's.)

This is the outline ; but let us note some of the details. Mr. Mallock asserts (Chap. I.) that the aim of modern Democracy is to overturn "all that has hitherto been connected with high-breeding, or with personal culture" ; and that "to call the Democrats a set of thieves and confiscators is merely to apply names to them which they have no wish to repudiate." He maintains (Chap. II.) that the first and foremost of the Democratic principles is, "that the perfection of society involves social equality" ; and that "the luxury of one man means the deprivation of another." He credits the Democrats with arguing that "the means of producing equality are a series of changes in existing institutions" ; that "by changing the institutions of a society we are able to change its structure" ; that "the cause of the distribution of wealth" is "laws and forms of government" ; and that "the wealthy classes, as such, are connected with wealth in no other way but as the accidental appropriators of it." In his third chapter he tells us that "the entire theory of modern Democracy . . . depends on the doctrine that the cause of wealth is labor" ; that Democrats believe we "may count on a man to labor, just as surely as we may count on a man to eat" ; that "the man who does not labor is supported by the man who does" ; and that the pseudoscience of modern Democracy "starts with the conception of man as containing in himself a natural tendency to labor." And here Mr. Mallock's statement of his opponent's position ends.

In the fourth chapter we are brought within sight of "The Missing Substitute." "A man's character," we are told, "divides into his desires on the one hand, and his capacities on the other" ; and it is observed that "various as are men's desires and capacities, yet if talent and ambition commanded no more than idleness and stupidity, all men practically would be idle and stupid." "Men's capacities," we are reminded, "are practically unequal, because they develop their own potential inequalities ; they do this because they desire to place themselves in unequal external circumstances,—which result the condition of society renders possible."

Coming now to the Science of Human Character itself, we find that it "asserts a permanent relationship to exist between human character and social inequality"; and the author then proceeds at some length to show how near Herbert Spencer, Buckle, and other social and economic philosophers, came to stumbling over his missing science, and yet avoided doing so. Nevertheless, argues Mr. Mallock, "if there be such a thing as a social science, or a science of history, there must be also a science of biography"; and this science, though it "cannot show us how any special man will act in the future," yet, if "any special action be given us, it can show us that it was produced by a special motive; and conversely, that if the special motive be wanting, the special action is sure to be wanting also." As an example of how to distinguish between those traits of human character which are available for scientific purposes, and those which are not, Mr. Mallock instances a mob, which temporarily acts together for some given purpose: the individual differences of character then "cancel out," and only points of agreement are left. Proceeding to the sixth chapter, he applies himself to setting to rest the scruples of those who find something cynical in the idea that the desire for Inequality is compatible with a respectable form of human character. It is true, he says, that man does not live by bread alone; but he denies that he means to say "that all human activity is motivated by the desire for inequality"; he would assert that only "of all productive labor, except the lowest." The only actions independent of the desire for inequality, however, are those performed in the name of art, science, philanthropy, and religion; and even in these cases, so far as the actions are not motivated by a desire for inequality, they are not of productive use; and *vice versâ*. In the remaining chapters, which we must dismiss briefly, we meet with such statements as "labor has been produced by an artificial creation of want of food, and by then supplying the want on certain conditions"; that "civilization has always been begun by an oppressive minority"; that "progress depends on certain gifted individuals," and therefore social equality would destroy progress; that inequality

influences production by existing as an object of desire and as a means of pressure ; that the evils of poverty are caused by want, not by inequality ; and that, finally, equality is not the goal of progress, but of retrogression ; that inequality is not an accidental evil of civilization, but the cause of its development ; the distance of the poor from the rich is not the cause of the former's poverty as distinct from riches, but of their civilized competence as distinct from barbarism ; and that the apparent changes in the direction of equality recorded in history, have been, in reality, none other than " a more efficient arrangement of inequalities."

Now, let us inquire what all this ingenious prattle about Inequality and the Science of Human Character amounts to. What does Mr. Mallock expect ? His book has been out six months, and still Democracy exists. But does any such Democracy as he combats exist, or could it conceivably exist ? Have his investigations of the human character failed to inform him that one of the strangest natural instincts of man's nature is immovably opposed to any thing like an equal distribution of existing wealth ?—because whoever owns any thing, if it be only a coat, wishes to keep it ; and that wish makes him aware that his fellow-man will wish to keep, and will keep at all hazards, whatever things belong to him. What Democrats really desire is to enable all men to have an equal chance to obtain wealth, instead of being, as is largely the case now, hampered and kept down by all manner of legal and arbitrary restrictions. As for the " desire for Inequality," it seems to exist chiefly in Mr. Mallock's imagination. Who does desire it ? Does the man who " strikes " for higher wages desire it ? Let us see. A strike, to be successful, must be not an individual act, but the act of a large body of men, all demanding the same thing—an increase in wages. If they gain their end, no difference has taken place in their mutual position ; and their position in regard to their employers is altered only in that an approach has been made toward greater equality with the latter. And as in other departments of human effort : the aim, which the man who wishes to better his position sets before himself, is not to rise head and

shoulders above his equals, but to equal his superiors. And as to the Socialist schemes for the reorganization of society, they imply, at most, a wish to see all men start fair in the race of life, the only advantage allowed being not those of rank or station, but solely of innate capacity. And the reason the Socialist desires this is, because he believes, rightly or wrongly, that many inefficient men are, at present, only artificially protected from betraying their inefficiency ; and that many efficient men are only artificially prevented from showing their efficiency ; and that the fair start he proposes would not result in keeping all men on a dead level, but would simply put those in command who had a genuine right to be there.

But this is taxing Mr. Mallock too seriously : he has not written in earnest. But, as his uncle, Mr. Froude, said, when reading "The New Republic,"—"The rogue is clever !" He has read a good deal, he has an active mind, a smooth redundancy of expression, a talent for caricature, a fondness for epigram and paradox, a useful shallowness, and an amusing impudence. He has no practical knowledge of mankind, no experience of life, no commanding point of view, and no depth of insight. He has no conception of the meaning and quality of the problems with whose exterior aspects he so prettily trifles. He has constructed a Science of Human Character without for one moment being aware that, for instance, human character and human nature are two distinct things ; and that, furthermore, the one is every thing that the other is not. As little is he conscious of the significance of the words "society" and "civilization" ; nor can he explain whether, or why, either of them is desirable or undesirable, good or bad. He has never done, and (judging from his published works) we do not believe him capable of doing, any analytical or constructive thinking ; at most, as in the present volume, he turns a few familiar objects upside down, and airily invites his audience to believe that he has thereby earned the name of Discoverer, if not of Creator.

MEDICAL EXPERTS AND THE COURTS.

It has been suggested at a late meeting of the Medico-Legal Society, by Dr. Wight, "that experts should be appointed by the Court and not employed by the litigants."

Ex-Surrogate Calvin regards this as perfectly feasible, but despite the weight which must be attached to his opinion, the question naturally arises: Are our judges capable of determining the status and ability of experts? It may be urged that their ability has never been tested on this point, and that they are generally men of high character. There is, however, a very good means of ascertaining judicial capabilities in this respect. There is such a thing as a lunacy commission frequently appointed by judges, and these contain medical members. Upon the ability of the medical members of such commissions must turn the question as to whether judges should be entrusted with the power of appointing experts. Are the medical members of such commissions alienists? It may safely be stated that, without exception, they are not. Some of them are not even acquainted with the most easily diagnostic psychoses. It is only a few years since one of these alienists by virtue of judicial appointment denied the existence of general paralysis, assigning as his reason that general paralysis must mean death. Bad as this specimen is, still worse have been appointed, some of whose decisions are not beyond suspicion of venal motives; a very natural suspicion, considering that they are the lowest class of medical politicians. In other cases dilettante physicians are appointed for family reasons, and of all the foes to science dilettante are the worst. Since appointments of this stamp are made to commissions *de lunatico inquirendo*, it must be clear that judges would appoint the same stamp of experts, and numerous as are the evils resulting from the present system, those resulting from Dr. Wight's substitute for it would be still more numerous and infinitely worse. To reform our expert system we must reform our political system, and until the average voter is capable of intelligent exercise of his franchise this will not be accomplished. The proposition is

decidedly *doctrinaire* in its nature, and should be opposed by all who have the interests of the insane and of forensic psychiatry at heart.

THE INDEX MEDICUS.

WE know of no more disinterested, and at the same time more useful, publication than the *Index Medicus*. The enormous extent to which medical journalism is carried in this country would seem to afford two very good reasons why the *Index* should be a success. The first is, that the confused mass of material scattered throughout our vast domestic medical literature is here presented to the student by title, enabling him both to keep pace with current literature and to avail himself of it in preparing his own contributions; and the second is, that in virtue of this very mass of medical writing, the *Index* is furnished with ample material to fill its pages.

If we add to these considerations the fact that the *Index* discovers to its readers the current medical literature of the world, the reasons for its success and its existence are doubled.

Nevertheless, the future of the *Index* is by no means assured. It requires additional subscribers to guarantee its continuance. We are informed that if each of the medical societies and libraries could be induced to contribute but one subscription, it would be safely established. Surely the profession will not allow an acknowledged aid, such as this demonstrably is, to fail for lack of this slight assistance.

HALLUCINATED LUNATICS AT LARGE.

IT is a recognized fact in psychiatry that hallucinated lunatics are the most dangerous and treacherous. The following interview of a Brooklyn police superintendent throws light on many mysterious murders and assaults, and fully accounts for their comparative frequency:

"It is surprising," said Police Superintendent Campbell, of Brooklyn [*New York Sun*], "how many men there are in active life who, while successful in their own business, and apparently

sound in general, have some vagary which, when uppermost in their conversation, raises a serious doubt about their mental condition. I have a number of such visitors, and I have been in the habit of sending them to the commissioners of charities, but recently they sent me word that if they should undertake to care for all the cranks it would take an asylum ten times as big as they have got. An intelligent man of polite address called upon me some months ago, and said that he had a complaint to make which he had put off speaking about as long as possible, but he was annoyed almost to death, and wanted police help. 'State your case,' I said. 'Well, there is an extension to my house, and the roof is just off my sleeping-room. Now, every night a big crowd of fairies congregate there, and make every sort of mischief.' 'What?' said I. 'Fairies,' he said; 'fairies.' 'Oh,' I said, 'I never saw one.' He seemed surprised, and when I asked him to describe them he said they were little people of both sexes, about two or three feet tall, dressed in fantastic costumes and with funny faces.

"'What do they do?' I asked. 'Oh, they chatter and dance and play, and run to the window and make faces at me, and run away again. They keep it up all night, and I can't get any sleep, and I'm not going to stand it any longer. It's been going on now for months, and it is injuring my health.' Seeing that the man was in earnest, and that the best way to take him was the most serious way, I said: 'This is an outrage, and must be stopped. That's what I'm here for, and the fairies must get out or I will, depend upon that. Now, I'll investigate this matter, and you won't be troubled again. You go to bed to-night and go to sleep, and you'll hear no more of the fairies.' Three months passed, and the man and his story had almost passed out of my mind, when one day he came into my office, saying, 'Here I am again!' 'What's the matter now?' I asked. 'Fairies,' said he, 'the same old fairies.' 'Why,' I said, 'I thought we had broken up that gang of fairies.' 'Well,' he said, 'after you drove them off I did n't see or hear any thing more of them until last night, when they came back again. Now I must ask you to attend to them again.' I promised him that I would, and he went away thanking me, and as I have n't heard from him since I suppose that I have banished the spirits as successfully as before.

"A few days ago, a gentleman who is well known in business in New York, and lives in the vicinity of the Heights, called upon me and complained that he was intensely annoyed by boys follow-

ing him about, crying 'Cat ! cat ! cat !' Every morning, he said, as he passed from his house to the ferry, he was pursued by boys uttering these cries ; that they followed him on the ferry-boat with their noises, and to his place of business. He only escaped them when he went inside to work. When he came out at noon, they began to annoy him again with the cries, and as soon as he stepped out from the restaurant where he took his lunch, the cry of 'Cat ! cat ! cat !' again rang in his ears. He could not get in a stage, or cross the street, or step out-of-doors but that the cries of 'Cat ! cat ! cat !' would reach his ears. 'Why do you suppose that you are so annoyed?' I asked. 'Oh, I suppose it is because I believe in feeding all the cats that come to my place ; and whenever I see a cat I want to feed it. I suppose when a cat's hungry I've got to feed it, have n't I?' 'Certainly ; but can you describe those who annoy you?' 'Now, that's the worst of it,' he said. 'I have never seen them. Pshaw ! if I could see them I would n't ask help of anybody. I would redress my wrongs myself. But these cries seem to come from invisible persons, right out of the air.' I called in the captain of the police precinct where my visitor lived, told him the story, and gave him instructions to put a stop to this outrage, and that is the last I heard of the man haunted with the cries."

The same story has been told by the police officials of other cities, but the same public which quickly cries out for the blood of lunatics is as much addicted to crying out against all precautions for the safety of the sane.

A SCIENTIFIC COINCIDENCE.*

IN a little book—the last probably that he wrote—Dr. Beard called attention in the most amiable manner to the remarkable identity that exists between the words and ideas of Mr. Herbert Spencer's speech upon "The Gospel of Relaxation," and his own words and ideas upon the same subject to be found in his work entitled "American Nervousness."

We reproduce Dr. Beard's parallel columns merely to emphasize the remarkable similarity of ideas and even language that may oc-

* "Herbert Spencer on American Nervousness ; a Scientific Coincidence." By George M. Beard, A.M., M.D. G. P. Putnam's Sons.

cur to minds directed toward the solution of similar problems, and more particularly to give credit for priority to an American physician, where credit is evidently due.

From Mr. Spencer's Speech.

"In brief, I may say that we have had somewhat too much of the 'gospel of work.' It is time to preach the gospel of relaxation."

From Mr. Spencer's Speech.

"It seems to me that in one respect Americans have diverged too widely from savages.

"The savage thinks only of present satisfactions, and leaves future satisfactions uncared for. Contrariwise, the American, eagerly pursuing a future good, almost ignores what good the passing day offers him; and when the future good is gained, he neglects that while striving for some still remoter good."

From Mr. Spencer's Speech.

"What I have seen and heard during my stay among you has forced on me the belief that this slow change from habitual inertness to persistent activity has reached an extreme from which there must begin a counter change—a reaction. Everywhere I have been struck with the number of faces which told in strong lines of the burdens that had to be borne. I have been struck, too, with the large proportion of gray-haired men, and inquiries have brought out the fact that with you

From "American Nervousness," p. 313.

"*The Gospel of Rest.*—The gospel of work must make way for the gospel of rest."

From "American Nervousness," pp. 128-130.

"*Habit of Forethought.*—Much of the exhaustion connected with civilization is the direct product of the forethought and foreworry that makes civilization possible. In coming out of barbarism and advancing in the direction of enlightenment the first need is care for the future.

"On the highly civilized man there rests at all times a threefold burden—the past, the present, and the future! The barbarian carries through life but one burden—that of the present, and in a psychological view, a very light one indeed; the civilized man is ever thinking of the past—representing, repeating, recasting, and projecting the experiences of by gone days to days that are to come. The savage has no future, but little of the past, and that little is usually pleasant, and not burdensome."

From "American Nervousness," pp. 13 and 52.

"While modern nervousness is not peculiar to America, yet there are special expressions of this nervousness that are found here only; and the relative quantity of nervousness and of nervous diseases that spring out of nervousness, are far greater here than in any other nation of history, and it has a special quality."

"Among savages in all parts of the earth baldness is unusual, except in ex-

the hair commonly begins to turn some ten years earlier than with us. Moreover, in every circle I have met men who had themselves suffered from nervous collapse due to stress of business, or named friends who had either killed themselves by overwork, or had been permanently incapacitated, or had wasted long periods in endeavors to recover health."

From Mr. Spencer's Speech.

"Hereafter, when this age of active material progress has yielded mankind its benefits, there will, I think, come a better adjustment of labor and enjoyment. Among reasons for thinking this, there is the reason that the process of evolution throughout the organic world at large brings an increasing surplus of energies that are not absorbed in fulfilling material needs, and points to a still larger surplus for humanity of the future."

treme age, and gray hairs come much later than with us. So common is baldness in our large cities that what was once a deformity and exception is now almost the rule and an element of beauty. One may be bald without being very nervous; but the general prevalence of baldness comes from the general prevalence of nervousness."

From "American Nervousness," pp. 293 and 303.

"Accumulated and transmitted wealth is to be in this, as in other countries, one of the safeguards of national health. Health is the offspring of relative wealth."

* * * *

"It is a part of the law of evolution that nations, as well as the individuals of which nations are composed, can in time so fit themselves to unfavorable external conditions as practically to reverse them and make them favorable."

* * * *

(To the development of this subject nearly an entire chapter is devoted.)

"Already there are developing signs of improved health and vigor that can not be mistaken; and the time must come—not unlikely in the first half of the twentieth century—when there will be a halt or retrograde movement in the march of nervous diseases."

A PUBLIC subscription has been opened in France for the purpose of obtaining money with which to erect a statue to Pinel. More than five thousand dollars has already been subscribed. The most striking feature of the project is not that Pinel should be honored—the memory of his great reform at Bicêtre will never die—but that a modern public can be found who shall honor its benefactors.

Periscope.

a.—PHYSIOLOGY OF THE NERVOUS SYSTEM.

GANGLIA OF THE SYMPATHETIC AND VASO-MOTOR NERVES.—Dastre and Morat have made experiments upon the relation between the sympathetic ganglia and the vaso-motor nerves. The superior cervical ganglion exercises a tonic action upon the bucco-facial vessels. If the nerve is cut below the ganglion, the color of the bucco-facial region does not change; if, however, the ganglion is torn out, a dilatation of the vessels takes place. The inferior cervical ganglion, and especially the first thoracic, exercise a tonic action over the vessels of the head, mainly the ears. This tonic action is reinforced by vaso-constrictor nerves coming from the cord with the roots of the third, fourth, and fifth pair of dorsal nerves; for the irritation of these nerves contracts the vessels of the ear, showing that the vaso-constrictors predominate over their antagonists. On the other hand, the same ganglia receive vaso-dilator fibres from the eighth cervical pair and the first and second dorsal, for the excitation of these nerves dilates the blood-vessels of the ear. These facts demonstrate that in the cervical sympathetic antagonistic vaso-motor fibres run. The inhibitory nerves, when they enter the ganglia, are lost there, at least in part; for when the sympathetic nerve is irritated immediately below the stellate ganglion, there is always a vaso-dilatation, whilst irritation above the inferior cervical ganglion causes habitually contraction of the vessels. These facts show that in the sympathetic ganglia there are tonic vascular centres and centres of interference. We see the first thoracic ganglion acts as a tonic centre whence the constrictor fibres emerge; secondly, that the constrictor filaments coming from the cord to this centre are reinforced in activity; third, elements antagonizing the preceding, coming from the cord and ending in the ganglion, where they exercise their inhibitory faculty. In the vaso-dilators of the inferior extremity the second and third lumbar ganglia act as tonic and inhibitory centres.—*Gazette des hôpitaux*, Nov. 22, 1883.

LESIONS OF AUDITORY APPARATUS AND TROUBLES IN LOCOMOTION.—Vulpian has been inserting into the ear of rabbits some

drops of an aqueous solution of chloral, twenty-five grammes to the hundred. At first there is only a little agitation, but at the end of twelve to fifteen minutes there is trouble in movement, the animal trembles, his head oscillates from right to left and *vice versa*, the extremities move with uncertainty, the animal falls on his side—generally on the side operated on; later, there is pronounced rotation of the head about the axis of the body. At the end of some hours the disturbances are more marked, and attain their maximum on the next day; then the animal rotates upon itself with violence, as after an injury to the middle cerebellar peduncle, the two eyes execute extended movements of vertical nystagmus. There is not the least sign of paralysis of the muscles of the extremities, but the facial muscles on the side operated on are paralyzed. These morbid phenomena preserved their intensity during many days, then they are enfeebled little by little. The facial paralysis persists as complete as on the day after the operation. It is seen that the troubles become more marked as the irritating agent goes more deeply, and acquire great violence when the cavity of the internal ear is attacked. The chloral by imbibition passes rapidly through the membranum tympani. The intensity of the motor troubles is due to irritation of the vestibule and semicircular canals.—*Gazette des hôpitaux*, Nov. 9, 1882.

FUNCTIONAL INDEPENDENCE OF EACH HEMISPHERE.—Dumont-pallier has demonstrated the functional independence of each hemisphere. Thus a subject, hystero-epileptic, with left dyschromatopsia and sensitive to pricking, in the left superior member, et cætera, was put into a state of somnambulism by pressure on the head, and ordered to knit, which she did in a regular manner with the two hands. Pressure exerted upon the left lateral part of the vertex arrested the movements of the left hand, the right continuing the work. Pressure upon the right side of the vertex arrested the movements of the right hand. Pressure upon the median region of the vertex awoke her. This demonstrated that the median pressure had a simultaneous reflex action upon the two cerebral hemispheres, whilst unilateral pressure had no more than a crossed unilateral reflex action upon the hemisphere of the side opposite to that upon which pressure had been exerted. In another experiment he proceeded as follows: The subject had left hemianesthesia for the superior region of the body and right hemianesthesia for the inferior region below the umbilicus, with left achromatopsia and right dyschromatopsia. This patient was put into a state of unilateral lethargy for the right superior region of the body, as was demonstrated by the calling out of cutaneous-muscular reflexes. By the action of light on the eyes, right unilateral catalepsy was induced. By pressure upon the median region of the vertex right unilateral somnambulism was induced. The movements of command are executed only by the right arm. In a second experiment, he applied upon the left frontal region a

metallic plate (aluminum). After three minutes of contact, transfer is produced, general and special sensibility are transferred to the left. The patient perceives on the left side colors, odors, and sound, with perception of taste on the same side. He induces then successively a state of lethargy, catalepsy, and somnambulism for the left superior part of the body, whilst the right side remains unmoved. In the first two experiments it results that hypnotism is only manifested on the side of the body where general and special sensibility actually exists; and as the sensibility perceived and the movement willed have their seat in the opposite cerebral hemisphere, it ensues that the peripheral irritation which brings back sensibility and motility on the paralyzed side of the body is able to do so only by acting upon the opposite hemisphere. The transfer of cerebral activity has taken place from the left hemisphere to the right. In a third experiment the patient being awakened Dumontpallier found that the sensibility of the left side had a tendency to pass to the right side of the body. Before this spontaneous transfer was completed, he applied a metallic plate to each side of the forehead, and soon the sensibility was found re-conveyed to both sides of the body. In this state all the phenomena of the three periods of hypnotism have been experimentally verified on both sides of the body. In the third experiment it is demonstrated that in fixing the sensibility of the two sides of the body by the application of plates upon the two sides of the forehead, there has been determined and maintained a peripheral irritation necessary for the activity of each cerebral hemisphere. The functional activity of each cerebral hemisphere has been shown by the preceding experiments. He also demonstrated in other experiments that the phenomena of suggestion in the cataleptic state may be different for the right and left side of the body; the one side of the face has an expression different to that of the opposite side. He also proved that in the state of somnambulism, the illusions and hallucinations may be different for each cerebral hemisphere. It is known that there is a great hesitation about the real origin of the olfactory nerves and their conjectural decussation. In these experiments upon crossed transmission of peripheral sensory impressions to the cerebral centres, the olfactory and auditory nerves act in the same manner as other sensory nerves. Hence experimental physiology demonstrates a total or partial decussation of the olfactory, auditory, and optic nerves.—*Gazette des hôpitaux*, No. 148, 1883.

HYPNOTISM.—Drs. Tamburini and Seppilli have arrived at the following conclusions from their studies on hypnotism :—

1. That the cause of the nervo-muscular excitability characteristic of the state of lethargy, the plastic flexibility of the muscles in the state of catalepsy, and the general contracture in the state of somnambulism are no more than so many different manifestations of the increased excitability of the central motor apparatus,

the proper and unique condition of hypnotism, which manifests itself under the different forms of exaggerated muscular tonicity, according to the duration and intensity of the stimuli which call it into activity.

2. In the hypnotic state for the suspension of the activity of the voluntary centres of consciousness, the whole cerebro-spinal axis is found in a state of exaggerated excitability, by which through the action of suitable stimuli there are easily produced hallucinations, suggestions, et cætera, in the sensory and psychical centres, and in the motor centres above-mentioned, manifestations of augmented muscular tonicity.

3. In the special phenomena which accompany the cataleptic state of hypnotism, as the slowing and suspension of respiration, the want of reaction of the muscles to all magnets, and the cessation of speech, they are very probably due to the weak contracture of the respiratory and voice-muscles, just as it exists in the other muscles.

4. The narrowing of the peripheral vessels which is seen in the passage from the phase of lethargy to that of catalepsy, is certainly the effect of a vascular reflex, produced by the stimulus which causes the passage from one state into another. This vascular reflex is analogous to that normally produced by external irritants. The dilatation of the vessels in the state of lethargy is due to the reëstablishment of the circulatory equilibrium.—*Rivista sperimentale di freniatria e di medicina legale*. Anno viii, Fasc. iv.

CIRCULATION IN THE EYE.—Dr. M. W. Af. Schulten has made experiments upon this subject in the Physiological Laboratory at Leipsic. He had an ingenious ophthalmoscope which magnified the background of the eye thirty to fifty times, and an improved bulbous manometer. His results were as follows: 1. The elastic distensibility of the bulb is relatively great when small degrees of pressure are employed, but when increased to thirty or forty millimetres Hg, it is almost = 0.2. 2. The amount of blood in the eye is directly dependent on the pressure in its blood-vessels. 3. Every increase of this pressure, whether induced by increased supply or venous impediment produces hyperæmia. 4. Every decrease of blood-pressure (ligature of the carotid, venesection, or debility of the heart) immediately produces anæmia of the eye. 5. The blood-vessels of the eye are subject to the influence of vaso-motor nerves which are partially conducted by the cervical sympathetic, and probably partially by the trifacial. 6. Notwithstanding the marked changes in the contents of the blood-vessels of the eye, the calibre and appearance of the same, especially the arteries as far as they can be observed in the retina and choroid, are little changed. The tonus of the vessels, however, is plainly indicated by changes in the diameter of both arteries and veins. From these results the general conclusions are drawn:—that the circulation in the eye is subject to the same laws as everywhere, with the

difference due to the anatomical construction of the eye; that with increased pressure the decreasing distensibility of the sclera opposes every sudden and marked increase of the blood, and moderates the deleterious action that strong currents of that fluid could produce in this delicate organ. The course of the retinal vessels through the optic nerve and the oblique course of the choroidal veins through the sclera probably serve to stay the otherwise too rapid exit of the blood from the eye. He also investigated the circulation of the brain principally by determining the intercranial pressure, and measurement of velocity and inter-arterial pressure, and found the results analogous to those about the circulation in the eye. The dependence of the circulation in the eye on that of the brain is expressed by the following sentences :

1. Collateral hyperæmia of the brain is accompanied by the same in the eye, and manifests itself by increased intra-ocular pressure and slight dilatation of the blood-vessels of the retina and choroid.
2. A passive (venous) hyperæmia induces the same of the eye only when the venous obstruction is central in the vena jugularis, or especially when in the thorax.
3. Decreased arterial supply gives rise to marked anæmia in the eye and decreased intra-ocular pressure. By injecting one-half per cent. solution of chloride of sodium into the subarachnoidal sac with constant pressure, when the intracranial pressure rises to forty to sixty mm. Hg., a characteristic picture will appear in the eye. The excavation of the disc is increased as its floor is pressed forward (choked disc). These facts are thought to be entirely in accordance with affections of the brain in which an abnormal quantity of fluid has accumulated in the ventricles. Brain-tumor influences the circulation only when it is complicated with exudation into the subarachnoidal space. The cause of the intra-ocular appearances, of which the most marked is choked disc, is the necessary encroachment of the cerebro-spinal fluid into the intervaginal spaces of the optic nerve, and the resultant compression of the vasa centralis retinae which was also produced experimentally. By concussion of the brain, as by a padded hammer, the intra-ocular pressure exhibits an increase contemporary with that in the brain, but quickly falls below normal, as soon as the blood-pressure has fallen. On further blows it falls more, the intra-ocular blood-vessels show diminished distension and become smaller. The cause of these phenomena is irritation of the medulla oblongata. The certain and the only means of diagnosis between compression and concussion is by means of the ophthalmoscope.—*The Weekly Medical Review*, vol. vii, No. 10.

THE SUMMATION OF IRRITANTS ON THE VASO-MOTOR CENTRE.
—Kronecker and Nicolaides have made experiments upon the main vaso-motor centre by means of electrical irritations. They used narcotized dogs whose medulla oblongata was severed from the brain above the vaso-motor centre. The animals were curarized, and artificial respiration was kept up. Their conclusions are as follows :

1. Separate induction shocks directly of the medulla oblongata or the spinal cord below it has no action upon the blood-pressure, or at least very little, even when currents are used whose single break has a tetanizing effect.

2. When at least two to three irritations in a second, if moderately strong currents were used, then there is an action through the summation of irritations.

3. These seldom irritations have an effect when their intensity is increased, but the vaso-motor action through increase of intensity of the current never attains to such a height, as through irritation with moderately strong currents of greater frequency.

4. When the intensity of the irritating current is constant, and the frequency of its breaks is increased, then the effect of the irritation on the vaso-motor increases. This effect does not increase after the frequency of the shocks has reached twenty to thirty in a second.

5. The maximum of blood-pressure by different animals, as dogs and rabbits of the same species and size, is of very different amount, and this maximum is obtained through strong irritations of moderate frequency (about ten to twelve breaks per second), and also through the moderately strong irritations of maximal frequency (twenty to twenty-five in a second).

6. The maximum of the blood-pressure was less when, later, even stronger irritations were reached, than when frequent weaker irritations were used.

7. After the irritation of the vaso-motor centre is ended, the blood-pressure gradually sinks.—*DuBois' Arch.*, 1883, Erster Heft.

THE ACT OF DEGLUTITION.—I. Steiner has been performing experiments upon the centre of deglutition, and the respiratory centre in rabbits, cats, and dogs. His conclusions are as follows: Every act of deglutition which ensues upon irritation of the superior laryngeus is connected with a respiratory movement. He believes that the two centres of deglutition and respiration are connected with each other by a so-called intra-central nerve-fibre.—*DuBois' Arch.*, 1883, Erster Heft.

EFFECT OF ANÆMIA ON THE ELECTRIC IRRITABILITY OF THE BRAIN.—Munk and Orschansky have experimented upon this subject: Losses of blood equal to $\frac{1}{4}$ of the whole quantity are without effect. About $\frac{1}{2}$ of the whole blood when lost increases the irritability, whilst greater losses of blood decrease the irritability. Gradual loss of blood affects the irritability less than rapid. Between the changes of blood-pressure and the irritability of the brain there is no parallel.—*DuBois' Arch.*, 1883, Erster Heft.

PATH OF FIBRES IN THE SPINAL CORD.—Dr. Wasil Kusmin has made a number of experiments as to the path of the fibres in the

spinal cord of the dog, and gives the following summary of his results, confirming in the main the results obtained by Woroschiloff, Ott, and R. M. Smith, with the same methods of study : 1. The lateral columns contain the sensory and motor fibres. 2. The anterior columns consist mainly of centrifugal fibres which, after destruction of the lateral columns, are capable of assuming their functions to a certain extent. 3. The posterior columns are largely formed of centripetal fibres. 4. The gray substance contains no continuous path of conduction. 5. The sensory fibres from the lower extremities decussate in the cord. 6. After a hemisection of the spinal cord, the motor nerves of the lower extremities preserve their functions as high as the anterior roots of the nerves on the level of the section on the opposite side of the cord. 7. Vaso-constrictor fibres run only in the lateral columns.—*Am. Med. Four. Med. Sci.*, Jan. 1883. *Medizinische Jahrbücher*, 1882, 11 Heft. ISAAC OTT, M.D.

b.—GENERAL PATHOLOGY OF THE NERVOUS SYSTEM.

DEAFNESS IN HYSTERICAL HEMIANÆSTHESIA.—Dr. G. L. Walton, of Boston, gives (*Brain*, Jan., 1883) the result of his examination of the hearing of thirteen patients affected with hemianæsthesia, in Salpêtrière, made at Professor Charcot's suggestion. Referring to the fact that in the hemianæsthesia of hysteria insensibility involves not only the skin and mucous membranes, but usually extends to sight, smell, taste, and hearing on the same side, the writer quotes Féré in his remarks on the involvement of the special senses, and also cites Jolly, Uspenski, Gellé, and Urbantschitsch, in reference to hysterical deafness. He divides his patients into three classes : those with *complete* anæsthesia on one side, the other side remaining intact ; those with *incomplete* anæsthesia on one side, the other remaining intact ; and those with anæsthesia more or less complete on both sides. In the *first class*, as in all, the anæsthesia extends to the deep part of the ear ; and being complete in this class the tympanum may be touched without any acknowledgment of sensation, and without the least reflex movement. In such a case the patient will be unable to tell with the eyes closed whether there is an instrument in the ear or not. Touching the deep parts of the opposite ear in these patients produces the usual disagreeable sensation and reflex movement, generally indeed exaggerated. That the anæsthesia extends to the middle ear is seen by the fact that insufflation by the Politzer air douche produces no sensation in the ear of the affected side. This is a fact to be borne in mind in the examination of these cases, for if the patient's sensations were relied on, the Eustachian tube might be supposed impermeable. In this class of patients neither the watch, the voice, nor the tuning-fork are heard by the affected ear, and no tuning-fork is heard on this side when vibrating against the skull.

The tuning-fork vibrating in contact with the forehead or teeth is heard only on the healthy side, in direct opposition to the cases in which loss of hearing is due to defective conductivity in the ear, and in which the tuning-fork is heard more distinctly on the affected side.

In the *second class* of patients the loss of sensibility of the ear corresponds, as a rule, to that of the body in general. A common form consists of analgesia, with thermo-anæsthesia and diminution of tactile sensibility. The tympanum of the affected ear may be touched without producing any unpleasant sensation, the touch being only faintly perceived, and being followed by no reflex. The air douche produces a slight sensation. The degree in which the hearing is affected varies within certain limits, but has been found lessened in every case examined. In some of these cases a diminution is found in the hearing for sounds conveyed by air, and a diminution or loss of hearing for sounds conveyed by the bone. In the *third class*, in which the anæsthesia is total, the completeness of the anæsthesia is rarely the same on both sides, a common form being hemianæsthesia on one side, and analgesia on the other. The degree of deafness always corresponds to that of the anæsthesia. Attention is called to the uniformity with which deafness for sounds conveyed by the bone exceeds that for sounds conveyed by the air, and the explanation offered that this is probably due to the fact that the vibrations conveyed to the ear by the air are better adapted for the irritation of the peripheral auditory apparatus than those conveyed by the bone. When, then, the receptive power of the auditory centres is lessened, as is probably the case in the hysterical patients, the hearing for sounds conveyed by the bone disappears before that for sounds conveyed by the air. An analogous condition exists in the aged. When the phenomena of transfer are observed the hearing as well as the general sensibility of the deep parts of the ear improves on one side (allowance being made for accidental lesions in the ear itself) in exactly the same degree in which it disappears on the other.

MICROCOCCHI IN CEREBRO-SPINAL MENINGITIS.—Prof. Leyden recently exhibited (Verhandlung. des Vereins f. innere Medicin, Berlin, Feb. 19th) specimens of micrococcus stained with fuchsin, and obtained from the cerebro-spinal fluid, taken from the body in a fresh state in a case of sporadic cerebro-spinal meningitis. These organisms are characterized by a distinctly oval form, usually united in pairs (diplococci) or more rarely in little chains (streptococci). They resemble greatly the micrococci of pneumonia and of erysipelas, and yet differ somewhat from these forms. The writer refers to the fact that Klebs and Ebarth found micrococci in the arachnoid fluid in cases of meningitis and pneumonia. The case represents an independent primary cerebro-spinal meningitis which began with otitis on both sides. The differentiation between the putrefactive micrococcus and the specific micrococci is not difficult

after a little practice. The meningitic micrococci exhibit movement, but not the lively movements of the putrefactive micrococci. They show a peculiar tremulous motion already described by Ebarth, and also by Gunther in the pneumonia micrococcus. Prof. Leyden stated that it would be of the greatest interest to determine whether this form of otitis was not dependent on the same parasitic micrococcus.—*Deutsch med. Wochen.*, Apr. 4, 1883. S. 206.

SOME STATISTICS OF CHOREA.—Dr. Angel Money (*Brain*, Jan., 1883). Total number of cases collected, 236. *Sex*: cases available, 214; males, 52; females, 162. *Age*: cases available, 186; 4 yrs., 1; 3 yrs., 5; 6 yrs., 6; 7 yrs., 15; 8 yrs., 13; 9 yrs., 20; 10 yrs., 21; 11 yrs., 20; 12 yrs., 15; 13 yrs., 17; 14 yrs., 10; 15 yrs., 13; 16 yrs., 9; 17 yrs., 6; 18 yrs., 5; 19 yrs., 3; 20 yrs., 6; 21 yrs., 1; 22 yrs., 6; above 22 yrs., 14. *Number of attacks*: cases available, 197; 1 attack, 131; 2 attacks, 46; 3 attacks, 15; 4 attacks, 1; 5 attacks, 1; more than 5 attacks, 3. *Month of the year when first observed*: January, 30; February, 16; March, 23; April, 27; May, 20; June, 25; July, 11; August, 11; September, 11; October, 17; November, 16; December, 17. *Cause assigned*: cases available, 214; fright, 60; accident, 13; hard school-work, 9; anxiety and worry, 6; imitation, 2; want of food, 2; exposure, 1; sore thumb, 1; no assignable cause, 120. *Heredity*: cases available, 214; rheumatic history, 28; chorea, 14; "fits," 6; rheumatic gout, 5; gout, 21; megrim, 21; epilepsy, 21; convulsions, delirium tremens, imbecility, "head-affectation," drunkenness, each, 1. *Rheumatism*: cases available, 214; history of genuine rheumatic fever, 33; of "rheumatism," 23; doubtful rheumatic history, 9. *Heart-disease and so-called functional murmurs*: cases available, 168; real heart-disease, 31 (13%); mitral disease, 29; aortic regurgitation, 2; systolic murmur, 64 (23%); this was apical in all but 11 cases. Heart-disease preceded by chorea in 7 cases; doubtful in 18; after chorea in 1; age, 5 to 10 years in 12 cases of heart-disease; 11 to 15 years in 12 cases. *Starting-place*: right side, 33 times; left, 30. It was worse on the right side, 55; on the left, 49; hemichorea, right, 3 times; left, 4 times; in right hand, 6; right arm, 6; left hand, 6; left arm, 6; right leg 1; left leg, 2; left face, 2; right arm and leg, 3; left arm and leg, 1; head, 3; speech, 2; legs, 1; arms 1; speech and hand, 1. When the disturbance of motion starts unilaterally in a particular region, it will travel over the whole of that one side ere it pass to the opposite side. *Duration*: in 19 cases, 1 month; in 66, 2 months; in 33, 3 months; in 18, 4 months; in 7, 5 months; in 9, 6 months; in 1, 8 months; in 5, 1 year; in 4, 2 years; 1 in 3 years; in many years, 5. *Interval between relapses*: in 51 cases with one relapse, 5 times the interval was less than 6 months; 5 times, 6 months; 13 times, 1 year; 15 times, 2 yrs.; 3 times, 3 yrs.; 5 times, 4 yrs.; once, 6 yrs.; twice, 8 yrs. In 18 cases of a second relapse, 3 times the interval between the 2d and 3d attack was

less than 6 months ; 3 times, 6 months ; 6 times, 1 year ; 4 times, 2 yrs. ; once, 5 yrs. ; once, 6 yrs. In 4 cases of a third relapse, the interval between the 3d and 4th attack was, once, 6 months ; once, 1 yr. ; twice, 2 yrs. In three cases of a 4th relapse, the interval between the 4th and 5th attack was, once, less than 6 months ; once, 6 months ; once, 1 year. *Intervals after fright* : Chorea began immediately after fright, in 9 females and 1 male ; 1 day after, in 3 females ; 2 days after, in 1 female ; 1 week after, in 1 female and 1 male ; 2 weeks after, in 2 females ; 3 weeks after, in 1 female ; 1 month after, in 2 females. *Relapse and fright* occurred in 25 cases ; fright and no relapse, in 42 ; relapse and no fright, in 41. *Relapse and rheumatism*, in 19 cases ; rheumatism and no relapse, 45 ; relapse and no rheumatism, 45. Additional statistics are given, comparing the duration of the disease with age, fright, rheumatism, and heart-disease. The author has not attempted in his paper to draw conclusions from the facts.

VARIATIONS IN THE RESISTANCE OF THE HUMAN BODY TO THE GALVANIC CURRENT IN HEALTH AND DISEASE.—A. Estore, (*Arch. de Neurol.*, vol. iv, No. 11,) while studying the physiological action of continued currents, observed that considerable variations occurred in the amount of resistance encountered whilst traversing certain tissues, not only in different subjects but in the same one at different times, a fact already observed by Vigouroux. Estore's method of testing was as follows : The positive pole was placed over the sternum, and the negative over some part, (uniformly the same,) of the forearm ; a current sufficiently feeble to be borne for some time (say ten elements) was then passed through. The precise time of closing the circuit was noted, and the exact number of divisions traversed by the galvanometer needle in a minute was observed, until it remained permanently at rest ; the maximum of intensity was reached, and the examination was concluded. It was observed that in two individuals subjected to the action of the same current, the resistance may vary in two ways. Ordinarily the maximum of deviation is different—high for one and less so for the other, no matter how long the current is applied. Less frequently the needle arrives at the same maximum, but in different periods of time ; being rapidly displaced in the one case, and less so in the other. These conditions—the galvanometer's deviations on the one hand and the time on the other—have aided in producing curves by means of which the results of different examinations may be easily compared. In the examination of hysterical hemi-æsthetic subjects it was no longer a question of comparing different individuals ; the two sides of a patient were to be examined. The first condition to fulfill was to localize the current to that half of the body to be experimented upon ; its influence was not to be felt on the opposite side, as, otherwise, its resistance would have been diminished if the current had been

applied to it in turn. To obtain this result, the positive pole was placed under the axilla instead of on the sternum, and the negative pole fixed upon the corresponding forearm by a circular band. The same electrodes were employed on the right and on the left, over points exactly symmetrical. They presented a plane surface of small extent, so that the contact with the skin might be at its best ; the greatest precautions were taken that the pressure should be equal on both sides. Five hysterical or hystero-epileptic subjects, all having hemianæsthesia, were successively examined. The sound side was first electrized, and then the affected one ; the first side was then gone over, and then the other, and this continued until the maximum was reached with certainty and rapidity. The first two patients could be examined but once ; the examination confirmed Vigouroux's opinion, that in hysterical patients affected with hemianæsthesia there is less power of conduction than on the sound side. The third patient was observed twice on account of the occurrence of a transfer ; the hemianæsthesia, primarily on the left, passed to the right. The increase of resistance also changed sides. In the fourth patient, an active hyperæsthesia having succeeded a complete anæsthesia, we saw, on the same side, the resistance, at first greater, subsequently become less than that of the other side. Finally, the same conductivity was observed on both sides of the last patient, whose sensibility was hardly less on the left side.—*Alienist and Neurologist*, April, 1883.

SUGGESTIONS AS TO THE ETIOLOGY OF SOME OF THE SO-CALLED SYSTEM-DISEASES OF THE SPINAL CORD.—Dr. H. Donkin, in an article under the above title (*Brain*, Jan., 1883), says : "The post-mortem study of such cases of spinal-cord disease as end in death, and can be thoroughly examined, has at present given us but little direct help toward tracing their causation from the beginning. When we thus examine the body the mischief is already wrought ; destructive lesions at most are demonstrated to us, though we may be led by a kind of natural inference to suppose some change in the cord, antecedent to the symptoms and to the structural lesion before our eyes.

"But in the face of these facts, and though the morbid anatomist has made no general claim to teach us any thing regarding the etiology of the diseases to which we refer, it would seem that many are led to regard too exclusively the lesion found in the cord as the primary source of the malady in question, and so incidentally to limit the field of inquiry as to how these special diseases may be brought about. But little attention is paid to the possible etiological antecedence of peripheral disturbance, or what may be called abnormal function, which by its continuance may set up the ultimate change in the structure of the cord, entailing all the morbid symptoms of the established disease."

ATROPHIC PARALYSIS OF THE UPPER EXTREMITIES.—Vierorth (*Dtsch. Arch. f. klin. Med.*, Bd. xxxi, Heft. 5, 6) calls attention to four well-defined affections, in the course of which the above-named condition was observed. 1. *Peripheral traumatic paralysis*. In this, the motor disturbance is strictly confined to the distribution of the affected nerve, and more or less marked muscular atrophy follows. Disturbances of sensibility are rarely absent in decided lesions, but do not always involve the whole distribution of the affected nerve, being often limited to a part only. Electrical examination exhibits different results according to the stage and severity of the affection. 2. *Peripheral neuritis*. The motor disturbance generally indicates the involvement of a definite nerve-distribution; certain muscles, however, may remain wholly or relatively unaffected, yet usually the involvement of one or more distinct nerves may be determined. Functional impairment usually precedes atrophy, though not always; both may go hand in hand. Disturbances of sensibility are generally in the distribution of the affected nerve, or confined to a portion of the same; sensibility may be normal, however, while disease of the muscles persists. Electrical examination may give very variable results, the different muscles also varying between themselves in electrical reaction; complete or partial "degeneration reaction" is the rule, however, when the disease is at its height. 3. *Progressive muscular atrophy*. The muscular affection may be more or less diffuse in its distribution, or, in some cases, entirely irregular, while in others it may be confined to definite nerve-tracts. It begins usually in the small muscles of the hands, exhibiting a complete parallelism between the development of the atrophy and the paresis. Sensibility remains unaffected. Usually partial, and occasionally complete, degeneration reaction can, at times, with difficulty be demonstrated, and in the latter stages reaction may disappear entirely. Fibrillary contractions are very frequent. 4. *Chronic poliomyelitis anterior*. The motor disturbance is not limited to definite nerve-tracts. In the common form paresis precedes atrophy; these relations may be changed: atrophy and paresis appearing at the same time. Decided disturbances of sensibility are absent. Complete or partial degenerative reaction is found.—Litten *Deutsch Medizinal-Zeitung*, Dec. 20, 1883.

THOMSEN'S DISEASE.—Prof. Westphal exhibited two cases of this disease before the Berlin medicinische Gesellschaft, in Jan., 1883. He gave this name to that rarely observed and peculiar disturbance of motility, consisting of a sort of tonic spasm, because the first information of this affection was described by Dr. Thomsen, and because his whole family were affected with it in a typical manner. The symptoms are, that along with an otherwise normal condition, all the voluntary movements are executed imperfectly or with difficulty, and combined with tetanic muscular contractions, which persist for some time after the execution

of the voluntary movement. These phenomena appear : 1. After a period of inactivity of the affected group of muscles. When, for example, the patient desires to raise himself from a chair, for which a certain amount of force is required, the muscles of the leg exhibit powerful contraction. 2. After forced movements. The biceps contracts strongly when the forearm is suddenly flexed ; extension of this member is only possible after a certain interval. 3. In complicated movements the same rigidity occurs, interfering with their regular execution. 4. According to Thomsen, merely thinking of a muscular movement is sufficient to provoke the spasm. Westphal's cases, however, did not exhibit this symptom. Cold favors the production of the phenomena. The passive movements are pretty free, even though certain muscular groups sometimes offer a resistance to their execution. All muscles supplied by the spinal nerves may be affected by this disease. The muscles themselves show such an excessive development that these patients exhibit an athlete's figure. This hypertrophy is not accompanied by a corresponding increase in function. On the contrary, it barely enables the normal efforts to be executed with a superfluous addition of force, while certain attempts fail, being, in fact, frustrated in consequence of this peculiar disturbance of function. The fingers are unaffected. The muscles innervated by the cranial nerves, on the other hand, do not escape, for muscles of the eyes and mouth may be affected. For example, when the eyes are closed the patient finds difficulty in opening them, or in bringing the lips into a proper position for laughing ; particularly at a low temperature. Sensation is normal, with, perhaps, the exception of occasional formication. Faradic and mechanical excitability is remarkably exalted. The application of an electrode to a muscle, or the stroke of a percussion hammer, produces an extraordinarily powerful and long-continued contraction. The skin and tendon reflexes are normal. The etiology of the disease has not yet been positively determined ; nor has the microscopical examination of an excised portion of muscle thrown any particular light on the cause of the affection. Westphal considers the most reasonable explanation to be, that it depends on an increase in the muscular tone, allowing weak stimuli to produce excessive excitation. The hereditary tendency of the affection is very noticeable. In Thomsen's family few escaped. One of the patients exhibited by Westphal is a nephew of Thomsen. Treatment has been thus far without effect. Aside from its scientific interest, this disease has also a practical side, as those affected may frequently be suspected of simulation, on account of their inability to execute complicated movements while they exhibit a magnificent muscular development. This is particularly true respecting military service, as happened to one of Thomsen's sons.—*Deutsche med. Wochenschr.*, Feb. 7, 1883, p. 86.

W. R. BIRDSALL, M.D.

c.—MENTAL PATHOLOGY.

PROGRESSIVE PARESIS FROM ALCOHOL.—Dr. E. Régis (*L' Encephale*, January, 1883) calls attention to the fact that it must be admitted that there are several forms of progressive paresis, differing according to the cause which engenders them, and it then remains to determine if around the true progressive paresis be not grouped several pseudo-progressive pareses. The question also arises, as has been pointed out, whether there is not a paralytic insanity as well as a paretic dementia, and whether the first arising under the influence of many causes, notably alcohol, does not end almost always in paretic dementia, but that it may be and often is cured. Had Dr. Régis a more extended experience, he would have seen that this supposed relation to etiology did not exist; that in all forms there were remissions, and these remissions have by superficial observers, been looked upon as recoveries. At the same time he does not seem to be acquainted with the fact that hypomania closely resembles, in its psychical features, progressive paresis, and fails to see that this is an element vitiating some of his conclusions.

PSYCHICAL BLINDNESS IN PROGRESSIVE PARESIS.—Dr. Stenger (*Archiv f. Psychiatrie*, Band xiii) reports five cases illustrative of the cortical blindness described by Fürstner as occurring in progressive paresis. The condition, according to Fürstner, and other experience, corroborates his view, usually occurs after the epileptiform and apoplectiform attacks. The patient can see, but fails to associate the object seen properly. If fire be placed before him he fails to associate the sight of it with the idea of burning. The condition is, as might be expected, sometimes temporary, sometimes permanent. The first, dependent on vaso-motor interruption of the associations; the last, from destruction of the same. In Fürstner's cases, one eye only was affected; in Stenger's, both. The pupillary differences found by the two observers are purely coincidental. Stenger found in one case not presenting this phenomenon, that there were visual hallucinations and hemianopsia. Atrophy of the occipital lobe was found in this case. In the cerebral blindness cases the lesions were too diffuse to permit of localization.

SYPHILITIC INSANITY.—Dr. C. H. Hughes, (*St. Louis Medical and Surgical Journal*, March, 1883) reports two cases of syphilitic insanity; one was a patient who had many morbid feelings, and had taken a strong antipathy to the physician who had at first treated him, and believed this physician had poisoned him. His manner was suspicious, and he was extremely cautious, inquisitive, and fearful about all medication. His eyes were suffused, pulse full, head hot, and his cerebral circulation over-active. The galvanic battery was his horror, and he withdrew from it as from a viper

on first attempting to employ it. By methods easier to practice than to impart, his confidence was gained sufficiently to induce him to take the necessary treatment, and it was found on inquiry, that he had years ago had a chancre, which healed spontaneously, giving him no trouble. A course of mercury and iodide of potassium, based on this information, combined with bromides, chloral, and galvanism, effected such a change for the better that the gentleman was enabled to resume his business of traveller for his mercantile house by the end of January. He has, however, been kept on kali iodide to the present time, the dose having been diminished from one drachm three times a day, to ten grains morning and evening.

Another case reported by Dr. Hughes was that of an American aged thirty years, unmarried, a lawyer by profession, and possessed of a good English education and ordinarily endowed intellect. When rational he was of studious and temperate habits, and professed the Methodist religion. His natural disposition was cheerful and social, and he has had no previous attacks of insanity and no hereditary tendency. His father's health was good, and his mother died at an advanced age. He came under hospital treatment in the fall of 1869, about ten days after his insane symptoms became first apparent. His parents were in no way regarded as eccentric; they were not blood-relatives, and he has no insane relatives. His general health was impaired and feeble, with syphilitic periostitis of tibia and nares. His case was attributable to constitutional syphilis as a predisposing, and to loss of sleep and excessive study as exciting, causes, but the brain strain was only ordinary work in the line of his profession. He was constipated, sleepless, and turbulent on admission, threatening God's vengeance on those whom he disliked, proclaimed himself called upon to preach the Gospel, talked religiously and blasphemously alternately. His appetite was ravenous, and he was filthy and indifferent in regard to his person, destroying clothing and bedding, soiling the floor and walls of his apartment. At the end of seven months, under specific treatment, no vestige of his mental disorder remained, and he was discharged as recovered, with instructions to continue iodide of potassium for two years. His treatment consisted of a short mercurial course, followed by drachm doses of kali iodide three times a day, with quinine and iron, opium and hyoscyamus.

INSANITY AND ADDISON'S DISEASE. — Dr. Jas. D. Munson (Detroit *Lancet*, April, 1883) has reported three cases of insanity coexisting with Addison's disease. In two cases the relation, he claims, was etiological; in the third, coincidental. The type presented was depression and suspicion. There was evidence of heredity in all three cases.

GYNÆCOLOGICAL EXAMINATIONS IN ASYLUMS.—Dr. Whitwell, in a recent discussion at the San Francisco Obstetrical Society (San Francisco *Western Lancet*, March, 1883), stated that when he was assistant physician in the New York State Lunatic Asylum there were three hundred female patients, but he did not know of a single examination having been made to determine the existence of uterine or ovarian disease. He believed that uterine disease was sometimes the cause of insanity.

PSYCHICAL SYMPTOMS FROM CRANIAL DEPRESSION.—Dr. Guernonprez (*Archives Générales de Médecine*, August, 1882) comes to the following conclusions respecting the influence of depression of the cranium in childhood: First, depression of the cranium, whether complicated or not, may in a general way be the cause of various psychical disturbances. Second, such disturbances are more marked when the depression is on the left frontal region. Third, such depressions may interfere with the normal psychical development and with the cerebral growth. The second conclusion is based on *a priori* ideas rather than on experience.

AMANITA MUSCARIA IN NEGATIVE LYPEMANIA.—Dr. Carle Bareggi (*Archivio per le Malattie Nervose*, F. iv, 1882, p. 219) has been experimenting with this fungus in the treatment of forms of insanity attended by negative depression. His results were not at all decisive of any thing. The drug appeared to be allied to belladonna in some respects, and from his description might be of value in mania, but was decidedly not indicated in the conditions in which he gave it.

CYCLOTHYMIA, OR CIRCULAR INSANITY.—Pick (*Neurologisches Centralblatt*, February 1, 1883) calls attention to the fact that Wigan ("Duality of the Mind," 1844, p. 287) was perhaps the first to clearly describe this form of insanity. Wigan mentions the case of a young man whose disease assumed the character of periodicity. There was a kind of cycle beginning with intense despondency passing on to composure, to cheerfulness, hilarity, boisterous gayety, violent and convulsive mirth, extravagant volubility and wit, gross and monstrous obscenity, and thence again into the most furious mania. This gradually subsided into melancholy, left him two or three weeks in tranquillity, and then went again into its miserable round.

ECCENTRICITY AND IDIOSYNCRASY.—Under this title Dr. W. A. Hammond (*New York Medical Journal*, October, 1882) discusses certain psychical manifestations which are the source of much forensic difficulty. He recognizes the difference between the two varieties of eccentricity, which Dr. Kempster so singularly confounded into one (Guiteau Trial, Official Report, p. 535).

Like Tuke ("Psychological Medicine"), Dr. Hammond regards the first as the result of an excess of individuality; the second being produced by weakened judgment. Under idiosyncrasies he places the antipathies which are sometimes found in healthy people. Some of the instances narrated belong, however, to a different category. Thus, the man who experienced alarming vertigo and dizziness when a precipice was described, was a person in whom the imagination was strongly developed, and who was, therefore, capable of active reproductions of the memory, producing the same phenomena usually observable on ascending a precipice. Between this intellectual phenomenon and the swoon of the people on seeing roses, etc., there is nothing in common. There is clearly traceable a process of intellection in the first case which does not exist in the others.

CRIMINAL ATTEMPTS IN INSANE ASYLUMS.—Under this title Dr. Giraud (*Annales Médico-Psychologiques*, November, 1882) discusses several attempts made, from obviously insane motives, by inmates of insane hospitals and other lunatics.

TROPHIC DISTURBANCES IN CONVALESCENCE FROM MANIA.—Dr. Sioli (*Neurologisches Centralblatt*, January 15, 1882) finds that, despite the best nutrition, the body loses weight during the excitement of mania. This he is disposed to attribute, not to the loss of sleep, incessant motion, etc., but to a trouble of nutrition of central origin.

TEMPORARY INSANITY IN BRASS FOUNDERS.—According to Binswanger, seventy-five out of a hundred brass founders are subject to a fever arising from their occupation (*Neurologisches Centralblatt*, March 15, 1882). One young man was attacked by a raptus melancholicus, which completely disappeared in three days. Similar types of insanity have been found due to lead (*JOURNAL OF NERVOUS AND MENTAL DISEASE*, 1881), and Binswanger is of opinion that the type presented was that of the toxic psychoses.

TRANSITORY INSANITY.—Loewenfeld (*Neurologisches Centralblatt*, June 15, 1882) attempts to determine a relation between the mania transitoria of English authors, the transitorisches töbsucht of Schwartz, and migraine. In his opinion, the insanity is on many occasions simply a migraine-replacing psychosis.

CLASSIFICATION OF INSANITY.—Dr. N. Folsom (*New York Medical Journal*, January 20, 1883) claims "that the impossibility of a perfectly satisfactory classification of mental diseases—that is, of one which admits of all cases being so grouped as to satisfy all authorities—is sufficiently demon-

strated by the numerous attempts which have been made, and which continue to be made, in the direction of elaboration and minute discrimination, while the most simple systems are still the most generally acceptable. For statistical purposes, or the comparison of general facts and results, a simple and arbitrary system will always be the most desirable, or, at any rate, until pathological investigation has gone deep enough to warrant classification on anatomical grounds—probably a very distant time. At present the classification in most common use in framing the reports of institutions for the insane is essentially that proposed at the beginning of the present century by Esquirol, comprising the groups of melancholia, mania, monomania, dementia, and imbecility or idiocy. Epilepsy and general paralysis are complications rather than distinct classes. The terms acute and chronic may be justly applied to many cases in several of these classes, but this does not render subdivision necessary, for the same individual who enters an asylum with acute mania, for instance, will, if recovery does not occur, be said to have chronic mania after a period of time varying with the judgment of different observers. Indeed, a classification can apply rigidly to a series of cases only at some one stated time, for change or alternation in the form of disease is very frequent. For purposes of study in detail, however, much more minute classifications are used. These systems are descriptive rather than definitive, and authorities vary so much in the practical application of fine distinctions that their introduction into statistics is rather to be deprecated. Subdivision and pseudo-scientific nomenclature have been carried to an absurd extent; and it has seemed at times as if new monomanias were invented solely to bring notoriety to the inventor. Where, however, a group of cases has a sufficiently distinctive form to meet with general recognition instead of repudiation, and especially if any practical points in the prognosis or treatment can be shown to exist in common among them, the study of such a group becomes profitable, and the interest of its natural history is enhanced. It is very rare to find the boundary lines absolute of such a group, however, and the effort to establish any characteristic pathological condition generally fails completely. A general resemblance in clinical history, or the possession of one or two salient points in common, is frequently held as sufficient ground for setting it up in business as 'an independent morbid entity,' with a high-sounding name compounded with more or less violence from the resurrected remains of dead languages. No harm is done if the essentially artificial character of the new disease is borne in mind; but, as in the instances of 'kleptomania' and 'dipsomania,' very vicious nonsense may be uttered as the result of confounding the facts in the case." The great objection to the classification is that single symptoms or modes of manifestation have been chosen as bases of classification in lieu of a logical association of symptomatology, etiology, and pathology, as in ordinary diseases. It will be obvious that Dr. Folsom is a believer in the, now nearly obsolete, view that pro-

gressive paresis was not a true morbid entity. The same remark applies to the view about the epileptic psychoses, for these present such an identity of symptoms as fully justifies the creation of a symptom-group for them. The confusion of the wild attempts at the creation of monomanias based on a single symptom, and the attempt to demarcate true psychical symptom-groups, is not very complimentary to the German and French authors who have attempted the latter task. It must also be confessed that such opinions concerning classification justify the present *laissez-aller* system of studying psychiatry.

To attempts at classifying disease the same objection exists. There is no system which will satisfy all authorities on nosology. In psychiatry the tendency has been to proceed from the classification to the disease, in lieu of *vice versa*. It is the same error which vitiates all attempts to treat science from an *a priori* standpoint.

MENTAL AUTOMATISM.—In relation to this question, Dr. W. B. Carpenter (*New York Medical Journal*, January 6, 1883) says "that a certain philosophic school claim that the man is a self-acting machine, whose operation at each moment of its existence is the necessary response of its *then* constitution to external agencies; that constitution being originally determined for him by his 'heredity,' and subsequently modified by his 'environments'—that is to say, by the various influences which have been brought to bear upon him during his whole life, but especially during that early stage of it in which his original constitution is most capable of being modified by external agencies, and in which, by the direction thus given to the processes of growth and development, those modifications tend so to fix themselves in his constitution as to exert a persistent influence upon his whole subsequent existence. Now, if that be the whole truth of the case, it is clear that man *is* an automaton, his conduct being in no degree determined by himself, but determined for him by influences which he has no power to control or direct, and for which he is therefore in no degree answerable. Strange as it may seem to many of you, this doctrine is explicitly affirmed to be the only one which a really scientific man can now hold; those who, like myself, attach some value to those facts of consciousness which are to us 'more real than any thing else, the only things we *know* to be real,' being pitied as the victims of a self-delusion which arises out of the erroneous shaping of our early beliefs, and which will soon die out with other exploded errors. It is to me not a little singular that one of the most distinguished members of this school, who now maintains that the state we call volition is not the cause of the motion which follows it, but merely the 'symbol in consciousness' of that state of the brain which is the immediate cause of that act (just as the blowing of a steam whistle signals, but does not cause, the starting of a locomotive), should have abandoned the firm position he formerly took, that

'man's volition counts for something as a condition in the course of events'—a belief which, he said, 'can be verified experimentally as often as we like to try, and which, therefore, stands upon the strongest foundation upon which any belief can rest, and forms one of our highest truths.' And I appeal to the consciousness of every one of you whether it does not give you the most distinct and explicit assurance, as often as you like to try the experiment, that your will *has* a power over the movements of your body. Now, when I speak of 'the will,' I wish you to understand that I mean the *Ego* in action. I do not regard the will as a distinct *faculty*. It is merely that *state* in which the *Ego* is purposely and expressly acting either upon the body or upon the mind. I shall show you by and by what a parallelism there is between these two forms of activity; and I think that you will all recognize it in that 'sense of effort' which we experience alike in the performance of bodily movements which are difficult to us, and in the keeping our attention fixed upon some mental object from which some powerful attraction would else withdraw it."

This method of reasoning is the same encountered among lunatics who seek to prove the validity of their hallucinations and delusions. Jonathan Edwards, in his work on the freedom of the will, has shown that the apparent spontaneity of volition to which appeal has been made by Dr. Carpenter is in reality determined by circumstances external to the individual.

LETTERS OF THE INSANE.—The following case illustrates very vividly the folly of bringing the insane into unlimited relations with the outside world :

Willard Asylum for the Insane, at Ovid, has among its inmates a Danish lady of good education, and who, previous to her insanity, occupied a respectable position in society. Her delusion is that she is immensely wealthy; the queen of the universe. On all other subjects she is relatively rational, and converses with ease and fluency. She has the delusion that the asylum is her castle, built for her special benefit, and that the attendants and inmates are her servants. Recently she managed to elude the vigilance of the attendants and mail a letter to a brother in Denmark, stating that she had become wealthy and was living in a magnificent mansion, surrounded by luxury and attendants, and had abundance to provide for himself and family, and closed by urging him to accept her hospitality and spend the balance of his life with her. Having frequently heard of the good-luck of his countrymen in the land across the sea, he did not have a suspicion but what fortune had favored his sister and that she had actually become rich. He therefore proceeded immediately to close out his little tailoring business, in which he had managed with difficulty to support his family, and with the proceeds purchased tickets for the transportation of his wife and five children to Central New York. Allowing the letter announcing his intention of

coming only a few days' start, the little family took ship for America with light hearts and great expectations. Arriving in New York, they set aside barely sufficient to take them to their destination, and spent the remainder in improving their appearance so that they should not bring discredit upon their rich kinswoman. On reaching Ovid they recognized Willard from the description given in the sister's letter. The cruel disappointment of the brother and his wife was pitiable. Instead of finding a wealthy sister to welcome them to her palatial abode, they found her in a hopeless condition and an inmate of an insane asylum. Letters of the insane should be kept and submitted to some central authority. More than one asylum physician has lost his life from attempting to evade the sending of improper letters of lunatics.

INSANITY FROM MEASLES.—Dr. M. J. Madigan (*Gaillard's Medical Journal*, October, 1882) reports the following two cases, which tend to support the views of Kräpelin and Clouston as to the influence of measles in the production of insanity:—Case 1: R. K., aged 22, single; no ancestral history obtainable. Has always been inclined to "nervousness." Was perfectly well up to two days before coming under observation, when he was attacked by what was thought to be a severe cold, which was soon followed by high fever and the measles eruption. In twenty-four hours the temperature of the patient suddenly sank and he began to complain that his sister had poisoned him. He heard at times, and chiefly on rising in bed, voices denouncing her crimes. On recovering from the measles all these symptoms disappeared. Case 2: T. O., 26; single; father epileptic; mother has chorea. The patient had been a bright, healthy boy up to the age of sixteen, when he was attacked by measles. During the entire bronchial symptoms he coughed violently and immediately complained of a violent pain in the head. For three days thereafter he was delirious. He recovered, apparently, from this delirium; that is, he became quiet and peaceable, but was completely demented, having lost all knowledge of both recent and past events, and was unable to carry on an extended conversation, in which condition he remained. Dr. Wick (*Cincinnati Lancet and Clinic*, March 10, 1883) reports a similar case.

INSANITY FROM SCARLATINA.—Dr. Wick (*Cincinnati Lancet and Clinic*, March 10, 1883) reports a case of insanity from scarlatina, which corroborates the views expressed by Kräpelin (*Archiv für Psychiatrie*, Band xi.), Rabuske (*Deutsche medicinische Wochenschrift*, March 19, 1881), and Kiernan (*JOURNAL OF NERVOUS AND MENTAL DISEASE*, April, 1882). The patient was a young man. The eruption was considerable, and the case typical in its nature. When the fever subsided the patient suddenly displayed casual hallucinations of a depressing nature, and was restless, sleepless, and loquacious. The psychosis lasted a week, the patient making a good recovery.

MORAL INSANITY.—Dr. Workman, the Nestor of Canadian alienists, (*Canadian Practitioner*, January and February, 1883,) after citing three cases of what he unhesitatingly denominates moral insanity, although no intellectual defect was present, cites a case from Dr. Clouston of a like nature, and says: "How many a wretched victim of legal and judicial ignorance might in a few years have found a refuge in an insane hospital, had not the gallows anticipated the fiat of nature."

DELUSIONS OF HYSTERICS.—The *British Medical Journal* makes the following citations on this subject: Charcot and Bourneville give instances of the extraordinary self-deceptions frequent among hysterical patients. Dr. Legrand du Saulle, physician to the Salpêtrière, Paris, describes ("Les Hystériques") some remarkable cases of delusion, where females labor under the belief that they have been struck or stabbed by others, even after having inflicted blows and wounds upon themselves. In one instance a young woman was found by her husband lying on the floor of her room in a fainting fit, her face covered with blood. On reviving from the swoon she stated that she had been attacked by armed men; the Paris newspapers related the case, and within three weeks two similar events occurred in the French metropolis. All these cases were fabricated by the supposed victims. A young girl wounded herself slightly with a pistol. She gave the police authorities the most minute details about an imaginary assassin, who, according to her account, fired the weapon, but she was found to be highly hysterical, and it was proved that she had wilfully wounded herself. In a third case a young woman was found in a railway carriage, stabbed in the left side. The incident caused great excitement, but it was proved, contrary to her assertions, that she had inflicted the wound herself, and was an hysterical subject. A house-maid was found lying behind a door, bound, gagged, and covered with bruises. She stated that she had been brutally attacked by two burglars with blackened faces, but she was a highly hysterical woman, and there appears to have been strong evidence that she had contrived to tie her own hands and to gag and bruise herself. In a case which occurred in M. Tardieu's practice, a young lady, living at Courbevoie, wished to make herself an object of public interest by passing as a victim of a political conspiracy, which she pretended to have discovered. One night she was found in a state of the greatest mental perturbation at the doors of her apartment. She could not talk, but stated, in writing, that she had been attacked outside her own house by a man who had attempted to garrote her, at the same time striking her twice with a dagger. Only the lady's clothing was injured, and the body of her dress and her corset were found to be cut through, but at different levels. She tried to make out that the attempt at strangulation had caused dumbness. M. Tardieu remarked, in her hearing, that this infirm-

ity rapidly disappeared when produced under circumstances of this kind. She soon managed to regain her speech, and in a short time admitted that the whole narrative had been developed out of her inner consciousness. Eccentricity in relatives is ever strongly presumptive of self-deception, when a female makes any statement or charges of ill-treatment of any kind. The constant fear of assassination, especially if based on reasonable grounds, is particularly liable to predispose nervous or excitable subjects to extraordinary delusions of this kind. The alleged attempt at assassination in the case of Lady Florence Dixie by Fenians has in all probability this origin. The explanation given of these delusions was advanced in this JOURNAL, July, 1880.

EXECUTIONS OF LUNATICS, AND MURDERS.—*Gaillard's Medical Journal* (March 31, 1883) says, commenting editorially on this subject: "The opinion is very generally expressed that the execution of lunatics has a tendency to deter other lunatics from murder. From an alienistic stand-point this cannot be defended, since every lunatic looks upon himself as the centre of the universe, and his act as *sui generis*. Certain statistics recently collected by Dr. Guy (*Journal of Mental Science*, July, 1882) still further show the fallacy of such opinions. The year after the execution of Bellingham, an admitted lunatic, the number of murders was double what it had been previously, and many of these were committed by lunatics. The same phenomenon was observed for three succeeding years. On the other hand, the acquittal of two lunatics did not have any effect in increasing the number of murders. Executions of lunatics have incited other lunatics to commit murder as an indirect means of committing suicide."

ALTERNATION, PERIODICITY, AND RELAPSE IN MENTAL DISEASE.—Dr. T. S. Clouston (*Edinburgh Medical Journal*, July, 1882) has recently discussed at length this question, more especially in relation to the subject, so much mooted at present, of circular insanity. He says that a careful clinical study of mental diseases reveals the fact that there exists in by far the majority of all the acute cases, at some time or other, in some form or degree, in the course of the disease, a tendency to alternation, periodicity of symptoms, remissions, or recurring relapses. Of the three hundred and thirty-eight cases of mental disease admitted to Morning-side Asylum in 1881—one hundred and eighty-one of them being cases of mania, and one hundred and twenty-nine of melancholia, the rest being general paralysis, dementia, etc.—there was in eighty-one of the female cases, or forty-six per cent. in that sex, and in sixty-seven of the men, or forty per cent. of that sex, relapse, alternation, or periodicity of symptoms in the course of their diseases. Many of the three hundred and thirty-eight admissions were chronic on admission, so that of the recent cases the decided

majority showed those symptoms. Fifty of the one hundred and twenty-nine cases of melancholia, or thirty-nine per cent., and ninety-eight of the one hundred and eighty-one cases of mania, or fifty-four per cent., were alternating or relapsing, or showed diurnal, or monthly, or seasonal, or sexual periodicity. It may therefore be concluded that insanity in the female sex has more of this character than in men, and that the cases of mania have it to a greater degree than those of melancholia. In some cases it was a morning aggravation and evening improvement, those being usually cases of melancholia; in a few cases of melancholia it was an evening aggravation. Of the chronic incurable cases, about forty per cent. were subject to aggravations. The stronger the heredity the greater the aggravation. He has never seen a single case of typical *folie circulaire* where there was not hereditary predisposition to insanity. It seems as if there were certain brains so constituted as to be incapable of energizing, except irregularly swinging between elevation and depression, like a bad electric light. The above facts and statistics refer to ordinary remissions; but the cases with such regular and continuous alternations as to be properly called *folie circulaire* are infrequent. Out of eight hundred patients now in the asylum at Morningside there are only sixteen of this kind, or two per cent., and of the last three thousand new admissions, comprising about two thousand fresh cases of insanity, less than ten have as yet turned out of this character. But the cases are not included which have merely long remissions, or cases with relapses for the first year or two, or the demented cases with occasional spurts of excitement, or the women with a few irritable days at menstruation, though many of these are of the same essential nature as the most typical cases of *folie circulaire*, following the same laws of perverted physiological periodicity in an irregular way. Dr. Clouston has had under observation altogether about forty cases of typical *folie circulaire*. Of these about one half followed a more or less regular monthly periodicity. About one third obeyed the law of seasonal periodicity, all in an irregular way; and the remaining sixth could be brought under no known law on account of their irregularity. One case, a lady, was for a year deeply depressed, then for several years quite well, then for seven years more deeply depressed, then for three months passed for sane, but was really mildly exalted, then was depressed for a year, has been exalted with all the typical symptoms of typical *folie circulaire* for two years. Though there are a few cases that begin with attacks of melancholia, yet in Dr. Clouston's experience, at least ninety per cent. begin with attacks of maniacal exaltation. The ages of the patients on the first breaking out of the disease were all the way from fifteen to seventy-four, but every one, except the one, began within the actively sexual and procreative period of life. He has no record of a woman beginning after the climacteric period.

As the termination of typical *folie circulaire* cannot be accurately determined till after the patients have died, it is impossible to give

accurate figures, but of forty cases, five ceased to be subject to alternation in old age after sixty, one being after eighty, two being women, and the men all left in a condition of mind and brain that might be legally reckoned insanity, though in all cases there were some mental enfeeblement and a tendency to be easily upset, lethargy, and a want of spontaneity and volitional power. Another case terminated in complete dementia. Two died of exhaustion during a maniacal period. Three things are sure about the prognosis: 1, its utter uncertainty; 2, recovery cannot be looked for at the climacteric period in many cases; 3, about twenty per cent. may be expected to settle down into a sort of quiet, comfortable, slightly enfeebled condition in the senile period of life. Very few indeed become completely demented, though two have run on into chronic mania. The tendency to death is very slight. Dr. Clouston found on autopsy the usual secondary changes consequent upon fluxionary conditions, and regards the psychosis as one dependent on dynamic or bio-chemical changes.

RESTRAINT AND SECLUSION.—Dr. C. H. Nichols (*New York Medical Journal*, March 31, 1883) believes that neither mechanical restraint nor seclusion should ever be resorted to unless, in the opinion of a competent and responsible medical officer, protection in particular cases against violence, exhaustive activity, the removal of surgical dressings, etc., can be effected more easily, completely, and beneficially to the patient than by either the hands of attendants, medicinal agents, showers and douches (inadmissible except in a very limited number of cases), or "packs," wet or dry, obviously a very positive form of mechanical restraint, though their therapeutical advantages may now and then be superior to any substitute for them; but that it is the practitioner's duty to resort to mechanical restraint or seclusion whenever it is needed for the reasons stated. The actual practice in the use of restraint varies more or less in different institutions, and is governed, as other measures of treatment are, by the training and character of the medical officers in charge, the opinion and support of the trustees, the number and character of the patients with respect to the extent and quality of their accommodations, the proportion of attendants to patients, the scale of expenditure, and other agencies of treatment. The restraint needed in any institution will vary greatly with the varying conditions of the patients. While entirely unwilling to be governed by a prohibitory dogma or an arbitrary proportion to patients in the use of restraint, Dr. Nichols is of the opinion that only exceptional circumstances justify its average use in more than two or three per cent. of the cases under treatment. The effort was made last year to see how far restraint or seclusion could be reduced without violating the principles laid down, and on the men's side of the house restraint with the camisole or the bed-strap, or by seclusion, was resorted to in the course of the year in only eleven different cases (once in three

cases, three times in two cases, four times in two cases, five times in two cases, six times in one case, and seven times in one case, for periods varying from one to twelve hours). On the women's side of the house more restraint was used in the early part of the year, but in the last seven months it was used in only two cases, three times in one case, and four times in the other, for periods varying from one to ten hours. In the foregoing list of restraint used is included seclusion in three different cases of paroxysmal mania in men and one of general paralysis (four times in two cases, five times in one case, and once in one case, for periods varying from two to six hours). Seclusion was not resorted to in any other case, and the habit of voluntary seclusion into which certain old patients are inclined to fall has been entirely broken up. It is distinctly stated that the reduced use of restraint has not been attended by an increased use of nervous sedatives or hypnotics, which have, in fact, been very sparingly used. On the contrary, more dependence than ever before has been placed upon the composing and indirect hypnotic effects of tonic and stimulant treatment and the use of warm medicated baths and massage at bedtime. This illustrates the beneficial results of the New York Neurological Society's criticism. At the same time, it is evidence that Dr. Nichols is not a doctrinaire, and is incapable of the deception put upon Dr. Bucknill.

MUTILATIONS BY SEXUAL LUNATICS.—The relations between religiosity, sexuality, and mutilation have long been recognized by alienists. An aberrant tendency of the religio-sexual order finds its expression in some religious sects, and this tendency to self-mutilation is one of the cardinal principles of the Skoptzki, a Russian sect. Examples of the kind of mutilation practised by this sect are by no means unfrequently reported as occurring among religious lunatics. The *Archives de Neurologie*, September, 1882, reports the case of a tailor who removed both testicles without any other instrument than his nails, and perfectly recovered from the injury. In another case, reported in *Langenbeck's Archives*, a similar sexo-religious lunatic opened his abdomen with a rusty penknife; then, having recovered, he removed the left testicle and subsequently the right. It would appear that in certain cases, as was remarked by Montaigne, lust finds zest and stimulation in pain, and this seeking for a pain as a stimulus is, it is by no means improbable, an atavism, as certain of the lower animals cannot copulate without pain. In many of these religious lunatics the mutilation is referred to remorse or a desire to avoid temptation, but the most probable explanation is, in many cases, that of Montaigne.

PROGRESSIVE PARESIS AND MULTIPLE CEREBRO-SPINAL SCLEROSIS. — Zacher (*Archiv für Psychiatrie*, Band xiii) reports a

case of progressive paresis complicated by multiple cerebro-spinal sclerosis. He also reports a case in which symptoms of spastic spinal paralysis were present. He regards these spastic symptoms as of cortical origin. He is of opinion that differential diagnosis can be made between progressive paresis with spinal sclerosis and the same without spinal sclerosis, by the non-existence of sensory symptoms and contractures in the latter case.

MENTAL STATE OF HYSTERICAL PATIENTS.—Dr. H. Huchard (*Archives de neurologie*, March, 1882) discusses in a general way the mental state of hysterical patients. But the article is vitiated by the fact that Huchard fails to perceive that hysteria is a state often arising from congenital defects in the brain cortex. The mobility of the mental and neurological features of the hysterics are, and with justice, insisted on by Dr. Huchard. The tendency to opposition, contradiction, and controversy which hysterics display is also well described. The patient, described by Laségue and quoted by Huchard, who claimed to be a natural daughter of Victor Emmanuel's sister, and cited in evidence a certain mysterious casket, was really a primary monomaniac.

FORENSIC RELATIONS OF SEXUAL PERVERSION.—Kirn (*Allgemeine Zeitschrift für Psychiatrie*, Band xxxix, Heft 2 and 3) says that each doubtful case of sexual perversion, where an unnatural sexual tendency has been exhibited, should be examined by experts. That if the patient be found to have exhibited such tendencies from birth and exhibit a neuropathic hereditary history and physical evidence thereof, he should not be exposed to the rigor of the law, nor should he if such tendencies result from mental defect arising later in life.

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J. G. KIERNAN, M.D.

d.—THERAPEUTICS OF THE NERVOUS SYSTEM.

BROMIDE OF GOLD IN THE TREATMENT OF EPILEPSY.—Bourneville, and Magnan have used the bromide of gold in the treatment of epilepsy, but with no results. The dose was about 10 centigrammes.—*Progrès médicale*, 1883, p. 87.

THE TREATMENT OF EPILEPSY.—Dr. Robert Saunby sums up an article on this subject as follows :

The principal points to which I wish to draw attention are :

1. The value of combining bromide salts with each other (sodium, ammonium, potassium, lithium, and camphor), and with digitalis.
 2. The value of zinc and cannabis indica as adjuvants to the bromide.
 3. The use of borax in some cases which resist the bromides.
 4. The employment of caffeine or theine and nitro-glycerine in the treatment of epileptic vertigo.—*The Practitioner*, Feb., 1883.
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MEDICAL ANNOTATIONS CONCERNING EPILEPSY.—In an article under this title, Dr. Radcliffe gives some of the results of his experience in the treatment of epilepsy. He does not believe in the utility of giving much larger doses of the bromides than 3 i daily, (in this differing from most others). He is most disposed to use the bromide of ammonium as least likely to stultify and disfigure the skin. He thinks that the addition of iodide of potassium and bicarbonate of potassium makes it possible to give less of the bromide. Hypophosphite of soda increases the potency of the bromide one half or one third. Dr. R. recommends a diet with considerable fat (butter, olive-oil) and with only a moderate amount of nitrogenous matter. Regular employment of mind and body are also considered necessary.—*The Practitioner*, Feb., 1883.

THE REMEDIES IN THE TREATMENT OF EPILEPSY BEFORE THE INTRODUCTION OF THE BROMIDES.—Dr. James Russell gives the results of his experience with other remedies than the bromides in the treatment of epilepsy. His notes cover forty-nine cases. The drugs used were: iron, zinc, arsenic, strychnine, opium, cannabis indica, belladonna, atropine, phosphoric acid, chloroform, ice to vertebral column, blisters, seton, positive electricity. With the zinc there was decided benefit in six out of twenty cases; with the arsenic, improvement in four out of nine cases; with strychnine, the result "was not very promising"; with opium, some amendment in six out of fourteen cases; with cannabis indica, temporary benefit only in six out of nine cases; with belladonna and atropine, results unfavorable.—*The Practitioner*, Feb., 1883.

THE TREATMENT OF TRIGEMINAL NEURALGIA BY LIGATURE OF THE COMMON CAROTID AND BY NEURECTOMY.—Dr. Ferdinand H. Gross reports success by the use of the above measures. The patient had suffered from the neuralgia for nine years. The ligature of the common carotid caused permanent relief of pain in the first division of the fifth nerve, temporary relief in the second division, none at all in the third. There was no disturbance of brain function. Neurectomy was performed on the inferior dental nerve with relief of pain for one year and three months. Finally, neurectomy was performed on the superior dental and again on the inferior dental. So far (four and six months), there had been no return of pain.

In a discussion of the case before the Philadelphia Academy of Surgery, Dr. Brinton said he had performed neurectomy three times, but with little permanent good. Dr. Packard reported one case, apparently successful; Dr. Willard had performed resection of the inferior dental nerve twice in the same case, with the result of finally curing the patient.—*American Journal of Medical Sciences*, April, 1883.

THE USE OF TONGA IN TRIGEMINAL NEURALGIA.—Dr. T. H. Streets, U. S. N., reports upon the use of tonga in various forms of trigeminal neuralgia. The drug was first taken by himself, and Drs. Kidder, Griffith, and Doering, in order to determine the physiological effects. Doses of 4 cc. were taken hourly, until 16 cc. had been taken. There was a decided decrease in the elimination of urea. There was no change in the pulse, temperature, or pupils. The only constant subjective symptom was a certain sense of lassitude or muscular fatigue, not disagreeable or very decided. Two of the four experimenters noticed a tendency to cerebral congestion of short duration; one was slightly purged. It was then given to fourteen patients suffering from neuralgia of various branches of the trigeminus. All were soon relieved except three. It was rather slow in action, requiring about two hours for the full effects. It was given in 3 i doses repeated at intervals of about two hours.—*Proceedings of the Naval Medical Society*, vol. i, No. 2, 1883.

DEAFNESS AND INFRA-ORBITAL NEURALGIA OF REFLEX ORIGIN, RELIEVED BY EXTRACTION OF A CARIOUS TOOTH.—Gellé relates the history of a woman who suffered from deafness, and infra-orbital neuralgia on the right side, which had lasted for fifteen days. The symptoms were relieved by the extraction of a carious tooth.—*Gazette des hôpitaux*, Dec. 9, 1882.

CHOREA TREATED BY THE SALICYLATES.—A severe case of chorea in a boy fifteen years of age, suffering at the same time from acute inflammatory rheumatism, was treated by Dr. Thomas R. Fraser, with the salicylates. The choreic symptoms were quite promptly relieved.—*British Medical Journal*, Dec. 9, 1882.

THE PREVENTION AND TREATMENT OF HYDROPHOBIA BY HOANG-NAN.—Dr. Barthélemy describes the use of hoang-nan by the natives in preventing the onset of hydrophobic symptoms, and in treating the disease when developed. A dose of thirteen to fifteen centigrammes is given the first day, and this is regularly increased by a similar amount until toxic symptoms, such as muscular twitchings and slight rigidity, appear. A dose of one and a half to two grammes is generally the maximum.

When nervous symptoms, indicating a possible outbreak of rabies, appear, two or three grammes daily are given, in doses of about fifty centigrammes every half hour, until physiological effects appear. Cases attesting the efficacy of this mode of treatment are cited. So far as is known, the chief active principle of hoang-nan is an alkaloid allied to or identical with strychnine.—*Revue de therapeut.*, Feb. 15, 1883.

SYMPTOMS OF RABIES RELIEVED BY CHLORAL.—Dr. Broadbent recently reported to the Clinical Society of London a case of supposed hydrophobia treated by chloral, which recovered. The patient, a boy, æt. 12 years, was admitted into St. Mary's Hospital on February 25, 1876, suffering from violent convulsive attacks, which had been going on for two days. The history of the case was given in full. The symptoms, while not corresponding in all particulars to those seen in some fatal cases, were extremely similar, and the induration round the bite was corroborative evidence. The circumstances excluded emotional excitement as a cause of spurious hydrophobia, and there was nothing in the boy's previous history or character to suggest that he was a likely subject for hystero-epileptic simulation of the disease.—*Phila. Med. Times*, April 21, 1883.

TREATMENT OF INFANTILE PARALYSIS BY ELECTRICITY.—Dr. Dives, as a result of a large number of observations, comes to the following conclusions, which can hardly be said to embody any thing very new :

1. Galvanic currents, applied at the beginning of the disease, may cure.
 2. Induced currents are efficacious later in the disease, and when the movements return in the paralyzed limbs.
 3. The two forms of electricity, combined and continued for a long time, produce the best results, especially in desperate cases.
- Bulletin gén. de thérapeutique*, March 15, 1883.
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THE VALUE OF STATIC ELECTRICITY.—Dr. A. C. Garratt states that he has had great success with the static battery in chronic, muscular, periosteal, and arthritic rheumatism; also in sciatica and in painful cramps. He particularly refers to its value in the treatment of dim vision and partial amaurosis from chronic alcoholism, tobacco, or over-use. Fine sparks are drawn from the closed lids.—*Boston Medical and Surgical Journal*, Feb. 8, 1883.

NOCTURNAL ENURESIS TREATED BY VOLTAIC ALTERNATIVES.—Dr. Julius Althaus reports the case of an apparently healthy, though somewhat nervous, boy, aged fifteen, who suffered from incontinence of urine. He applied the middle-sized circular cathode over the region of the bladder, and the large oblong anode (five inches by two) to the lumbar portion of the spine. The current-strength 2.50 milli-amperes, for five minutes at a time. "As after a few such applications no material benefit appeared to have been gained, I then added fifty voltaic alternatives produced in the metallic circuit. The night after this was free from the usual annoyance, and the boy has made an apparently uninterrupted recovery."

Althaus refers to the good results reported by Erb and Seeligmüller from the use of faradism and galvanism in enuresis.—*British Medical Journal*, Jan. 20, 1883.

TREATMENT OF DELIRIUM TREMENS.—At the February meeting of the Boston Medico-Psychological Society, Dr. J. B. Ayer read a paper on the treatment of delirium ebriosum, in which he expressed preference for the bromides and chloral given alternately, any depressing effects being guarded against by the use of capsicum and coca.—*Phila. Med. Times*, April 21, 1883.

TREATMENT OF DELIRIUM TREMENS.—Dr. F. P. Atkinson advises administering half a tin of liquid essence of beef and half a pint of milk alternately every two hours. When put upon this regimen, a dose of twenty-five grains of chloral and thirty minims of tincture of cardamom is given, and repeated as needed. The chloral and food together cause sleep.—*Canadian Practitioner*, Jan., 1883.

THE EFFECT OF SUBCUTANEOUS STRETCHING OF THE SCIATIC NERVE FOR TABES DORSALIS.—At a meeting of the Société de Biologie, March 17, 1883, M. Lepine reported several cases of tabes, in which he had employed subcutaneous nerve-stretching of the sciatic. This measure was repeated several times, and eventually produced considerable relief from the pains and ataxy.

M. Brown-Séquard stated that he had tried the plan twice, but without success.

M. Dumontpallier was acquainted with one case where subcutaneous stretching of the sciatic nerve had been followed by a rapidly fatal result.—*Le progrès médicale*, 1883, p. 225.

FOR SCIATICA.—Dr. Geo. F. Shrady, of New York, relates a case of subcutaneous nerve-stretching for sciatica, which was successful up to time of report.—*Proc. of the Practitioners' Society*, May 5, 1883.

STRETCHING THE INFERIOR DENTAL NERVE FOR TIC DOULOUREUX.—M. Longuet, of Bourges, treated a patient, aged forty-one years, who had suffered from neuralgia of the inferior dental nerve for four years, by cutting down and stretching it. There was relief for about a month. The pains then returned.—*Société de Chirurgie de Paris*, séance, Jan. 31, 1883.

TREATMENT OF TETANUS—TRAUMATIC TETANUS CURED BY A MIXED TREATMENT.—Sédan, of the French army, relates the history of a man, aged twenty-four years, who was thrown from a carriage and injured on the head, the result being the development of tetanus of a very severe form. He was put upon the following treatment: (1) One centigramme of extract thebaïque every hour until further orders. (2) At the same time one tablespoonful of a mixture containing about a gramme of bromide of potassium and two thirds of a gramme of chloral. (3) Each morning, an enema containing six grammes of tincture of assafœtida and the same amount of valerian. (4) In the evening, injections of morphine to procure sleep, if needed. Cure followed in about six days.—*Gazette des hôpitaux*, March 1, 1883.

TRAUMATIC TETANUS CURED BY CHLORAL AND BROMIDES.—Dritier reports a case of traumatic tetanus in a boy aged eight. Half-gramme doses of chloral hydrate were given every two hours, alternating with the same amount of bromide of potassium.—*Centralblatt für Nervenheilk.*, Dec. 15, 1882.

PARALYSIS FROM ERGOT GIVEN IN THE TREATMENT OF LOCOMOTOR ATAXIA.—Professor J. Grasset, of Montpellier, cautions against the use of ergot in the treatment of tabes. A patient, aged thirty-eight, had had well-marked symptoms of this disease for two years. He then had an amelioration of symptoms and was doing well. Under the advice of M. Charcot he took ergot, alternating it with nitrate of silver. The dose was a quarter of a gramme daily, increased by 0.05 centigramme until a gramme daily was taken. He had reached the second day with his gramme dose when he became entirely paralyzed and unable to move. The ergot being stopped, he speedily recovered from the general paralysis. Grasset cites the observations of Tuczek, showing that ergot may itself produce a sclerosis of the posterior columns.—*Le progrès médicale*, March 17, 1883.

STRYCHNIA IN SMALL DOSES AS AN ALTERATIVE STIMULANT TO THE NERVOUS SYSTEM.—Dr. E. T. Bruen writes: When strychnia is given as an alterative stimulant to the nervous system, the dose may be advantageously made very small, pro-

vided it is given largely diluted and upon an empty stomach. In the pharmacutists' lists one can find granules of strychnia of the $\frac{1}{100}$ and $\frac{1}{200}$ of a grain each. This provides us with a preparation which is often the proper dose. Individuals have stated to me that they could not take strychnia; it had been tried as a remedy by this or that prominent physician with signal failure. I have asked, "Will you try my strychnia?" and forthwith have ordered the granules above named, not only with toleration, but with marked benefit. For example, tympanites has been modified, neurasthenia benefited, nervous headache relieved, respiration influenced, and the like. It is a fundamental principle, however, that no positive dose can be laid down as universally suitable.—*Phila. Medical Times*.

THE COMPARATIVE VALUE OF AMYL NITRITE, NITRO-GLYCERINE, AND NITRITE OF SODIUM IN THE TREATMENT OF ANGINA PECTORIS—Dr. M. Hay relates the history of a patient, a printer, aged forty-two, who had for about two years been suffering from angina pectoris. He was given amyl nitrite, which produced very temporary and imperfect relief. He was then put upon nitrite of sodium in doses of two to five grains p. r. n. This dose produced no physiological effect apart from relief of the pain. By using alternately the sodium nitrite and the nitro-glycerine, it was found that the latter, though better than the amyl, did not give such permanent results as did the sodium.

Dr. Hay states that nitrite of sodium is very apt to be adulterated with the nitrate to the extent even of two thirds its bulk.—*The Practitioner*, March, 1883.

ALCOHOLISM AND STRYCHNINE.—M. Lecuyé, in a work written under the inspiration, as we are told, of Prof. Luton, of Rheims, claims that strychnine is a specific for alcoholism as mercury is for syphilis. It may be given in very large doses in chronic cases. He would have it put in alcoholic drinks as a prophylactic against inebriety! Strychnine is no doubt of value, but M. Lecuyé's views are fantastical.—*Revue médicale*, March 24, 1883.

WOLFF'S METHOD OF TREATING WRITER'S CRAMP AND ALLIED DISEASES.—Wolff has been treating patients by his method in Berlin. At a meeting of the Berlin Medical Society five cases were reported which had been successfully treated. Wolff states that some of his patients have now remained well for four years.—*Berlin. klinisch. Woch.*, Feb. 19, 1883.

EXOPTHALMIC GOITRE TREATED BY INJECTIONS OF DUBOISINE.—Desnes has treated three cases of exophthalmic goitre with subcutaneous injections of neutral sulphate of duboisine. The

dose was one half to one milligramme daily. The amelioration was very marked, but the symptoms returned on leaving off the remedy.—*Glasgow Medical Journal*.

REFLEX VERTIGO TREATED BY CAUTERIZING THE NASAL MUCOUS MEMBRANE.—Hack reports two cases of vertigo caused presumably by an hypertrophy of the lower nasal mucous membrane. The symptom disappeared after applications of the electro-cautery to the diseased membrane.—*Berlin. klin. Wochen.*, Jan. 29, 1883.

ERGOT IN THE TREATMENT OF DIABETES INSIPIDUS.—Dr. J. M. DaCosta, who, in 1875, first called attention to the value of ergot in diabetes insipidus, has reported five more cases, making six in all. Of the six, five have apparently recovered. The ergot was given in doses of from three to six drachms daily of the fluid extract.—*Medical News*, Jan. 7, 1882.

MIXTURES FOR PRODUCING LOCAL ANÆSTHESIA.—When equal parts of chloral and camphor are triturated together, a clear, somewhat viscid, transparent solution results. This solution has considerable solvent power, and will take up a comparatively large proportion of morphia. Chloroform may also be added to it without precipitation of any portion of the dissolved constituents. Thus: \mathcal{R} : Chloral., camphor., \overline{aa} 3 ij.; morph. sulph., 3 ss.; chloroform., 3 j.— \mathcal{M} . This may be applied with a camel's-hair brush over the area to be incised, allowed to dry, and re-applied as freely as may be necessary to render the part insensible to pain.

Amongst the anæsthetic mixtures for surgical purposes proposed by Professor Redier are solutions of camphor in ether and in chloroform. One drachm of camphor may be dissolved in two drachms of ether, or the same quantity in two drachms of chloroform. A useful anæsthetic mixture is prepared by the addition of crystallized acetic acid to chloroform, in the proportion of one part of the acid to twenty parts. These anæsthetic solutions are applied by the brush freely over the part of the seat of pain, or to be incised. In some instances it may be better to moisten a cloth or some cotton, and allow it to remain for a time in contact with the part. Pure carbolic acid has an anæsthetic effect when applied to the skin.—*Phil. Med. News*, Feb. 10, 1883.

The local (and reflex) anæsthetic power of carbonic-acid gas has been demonstrated by Dr. Brown-Séquard. By directing a current of this gas upon the upper part of the larynx, in certain animals, for one quarter to two minutes, local anæsthesia and slight general anæsthesia was produced.—*Nature*, p. 557, 1882.

CURABILITY OF GENERAL PARESIS.—M. Magnan in a clinic at St. Anne related the history of two persons suffering from general paralysis, who had recovered. The patients were seen by several physicians, and had shown, of course, only the initial symptoms.—*Four. de médecine et de chirurgie pratiques*, No. 1, 1883.

CANNABIS INDICA IN PETIT MAL.—M. F. D. Hayman reports the successful use of tincture of cannabis indica in a case of petit mal which had resisted other remedies. He gave it in doses of m. x, increased to 3 ss. The patient was a young man 26 years of age.—*Lancet*, Jan. 27, 1883.

TREATMENT OF SPERMATORRHŒA.—Dr. H. Coupland Taylor gives a tolerably good résumé of the line of treatment to be followed in ordinary cases of spermatorrhœa. The measures to be adopted are: 1, moral; 2, hygienic; 3, medicinal. 1. *Moral.* *a.* The pernicious habit of masturbation, which has probably been the origin of the complaint, must at once be discontinued, or no good can result from any treatment. *b.* The thoughts should be directed from himself by his having regular work and exercise. *c.* The anxiety of mind which ensues should be allayed as much as possible, and a happy state of mind instituted. 2. *Hygienic.* *a.* The patient should have regular but not excessive mental employment, and bodily exercise in the form of walking, riding, or out-door sports and games. *b.* Cold sponging of the genitals night and morning for some minutes, or as long as can comfortably be borne, is a most important agent in giving tone to the relaxed organs. *c.* The patient should have a hard mattress, and as little and as light clothing as possible at night. Care should be taken not to lie on the back, which may be prevented by wearing a knotted towel over the spine, or by some other device. *d.* No quantity of liquid should be taken before retiring to rest, and the bladder should be emptied the last thing. 3. *Medicinal.* A mixture containing tincture of perchloride of iron and tincture of nux vomica should be given twice or three times a day; also a pill containing a fourth or a third of a grain of extract of belladonna with three grains of camphor should be given at first every night, and then every other night, immediately before going to bed.—*British Med. Jour.*, March 24, 1883.

SCIATICA AND LUMBAGO TREATED BY DRY CUPS AND SUBCUTANEOUS INJECTIONS OF ETHER.—Mr. J. Brindley James claims very successful results from the above method. The ether is injected in doses of ten minims, repeated and gradually increased to thirty minims.—*British Medical Journal*, March 17, 1883.

CHAPMAN'S NEURO-DYNAMIC METHOD.—Dr. B. O. Kinnear makes a strong plea for the wider employment of Chapman's "neuro-dynamic system" of hot and cold bags. The system, it will be remembered, is based on the theory that ice-bags properly applied over the spine dilate the arterioles, and arrest at the same time hypersecretion from the glandular system, check spasmodic and irregular muscular movements of voluntary and involuntary muscles, and arrest hypernutrition by its sedative action upon trophic centres. Heat applied in the same way acts in an exactly opposite manner. Neuralgias, colic, vomiting, diarrhœa, migraine, insomnia, are some of the diseases said to be controlled by these measures—in which we have no reason to place much faith.—*Boston Medical and Surg. Journal*.

A PURE ALKALOID FROM GELSEMINUM.—The variability and uncertainty in the effects obtained from gelseminum are well known. The discovery of the method of obtaining a pure alkaloid is therefore to be welcomed. Mr. A. W. Gerraud has obtained a pure crystallizable *gelsemine*, which yields crystalline salts. It seems to be a stable body. Its dose is not yet accurately known.—*British Medical Journal*, Feb., 1883.

NERVE-STRETCHING.—Dr. Ceccherelli gives a very complete résumé of this subject, but contributes nothing new.—*Lo Sperimentale*, 1882 ; *London Medical Record*, April, 1883.

LIME-JUICE AS AN ANAPHRODISIAC.—Mr. Berdœ and an anonymous writer refer to the extensive use of lime-juice by sailors as an anaphrodisiac. Poor Jack is often sadly in need of such a drug, and ought to know when he has one.—*Lancet*, Feb., 1883, pp. 221 and 260.

THE ACTION OF LEAD ON THE VAGUS NERVE.—Curci states, as the result of experiments on animals, that the salts of lead have an irritant action on the vagus nerve. The heart-beats diminish in frequency and become intermittent.—*Gaz. degli Ospitali*, March 25, 1883.

THE WATERS OF LAMALON IN THE TREATMENT OF TABES DORSALIS.—Dr. Cot, of Paris, reports three cases of great alleviation in tabes from the use of the waters of Lamalon, and thinks that in very many cases they will be found beneficial. These waters are alkaline, ferruginous, and arsenical. M. Grasset, in his work on the "Diseases of the Nervous System," devotes a chapter to them.—*Journal de thérapeutique*, April 10, 1883.

MILK DIET IN EXOPHTHALMIC GOITRE.—Schnaubert recommends highly an exclusive milk diet in cases of exophthalmic goitre. He reports three cases very favorably influenced by such diet.

Dr. C. Shumova also reports two cases which were greatly benefited by this line of treatment.—*Ejenedeln. klin. Gaz.*, 1882, Nos. 1-5, 13; *London Med. Record*, Feb., 1883.

C. L. DANA, M.D.

BOOKS AND PAMPHLETS RECEIVED.

A Treatise on Insanity in its Medical Relations. By William A. Hammond, M.D. New York: D. Appleton & Co., 1883.

Injuries of the Spine and Spinal Cord, and Nervous Shock. By Herbert W. Page, M.A., M.C., Cantab. London: J. & A. Churchill, 1883.

Des Troubles Vertigineux dans le Tabes. Par Pierre Marie et G. L. Walton, M.D., Boston. Extrait de la *Revue de Médecine*. Paris: Germer, Baillière, et Cie.

Contributions to Physiology. By Isaac Ott, M.D. Part v. Easton, Pa., 1883.

Deafness in Hysterical Hemianæsthesia. By G. L. Walton, M.D., Boston. (Reprinted from *Brain*, Part xx.) London, 1883.

On the Influence of the Galvanic Current on the Excitability of the Motor Nerves of Man. By Augustus Waller, M.D., and A. de Watteville, M.A., B.Sc. From the Philosophical Transactions of the Royal Society, Part iii, 1882. London.

Introduction à l'Étude de l'Electrotonus des Nerfs Moteurs et Sensitifs chez l'Homme. Thèse Présentée à la Faculté de Médecine de Bâle. Par Armand de Watteville. Londres, 1883.

A Case of Hemiplegia, with Remarks on Secondary Degeneration of the Pyramidal Tracts. By Philip Zenner, M.D. Cincinnati, 1882.

General Paralysis. By Philip Zenner, M.D., Cincinnati. Reprinted from the *Cincinnati Lancet and Clinic*, 1882.

Aphasia, with Details of Two Interesting Cases. By Philip Zenner, A.M., M.D., Cincinnati. Reprinted from the *Cincinnati Lancet and Clinic*, 1883.

On the Character and Hallucinations of Joan of Arc. By William W. Ireland, M.D. Read to the Branch Meeting of the Medico-Psychological Association at Edinburgh, 1882. (Reprinted from the *Journal of Mental Science*, 1883.)

Typho-Malarial or Continued Malarial Fever. By R. D. Webb, M.D., Alabama. From the *American Journal of the Medical Sciences*, 1883.

The Opium Habit ; its Successful Treatment by the Avena Sativa. Paper Read before the New York State Medical Society, 1882. By E. H. M. Sell, A.M., M.D. Jersey City, 1883.

Situation of Eggs and Fetuses in Twin Pregnancy ; Symptoms. By M. P. Budin, Accoucher de la Charité, Paris. Medical Abstract, Reprint No. 5.

The Scientific Roll and Magazine of Systematized Notes. Conducted by Alexander Ramsay, F.G.S. Climate, Vol. I. Part iii, Aqueous Vapor. London, 1883.

Ueber progressive Gesichtsatrophie und Scleroderme. Von Prof. A. Eulenburg in Berlin. (Separat-Abdruck aus d. *Zeitschrift f. klinische Medicin*.)

Atmospheric Electricity as a Remedy. By Alfred C. Garratt, M.D. Reprinted from the *Boston Medical and Surgical Journal*, 1883.

The Percentage of College-Bred Men in the Medical Profession. A Paper Read before the American Academy of Medicine, 1882. By Charles McIntyre, Jr., M.D., of Easton, Pa.

Old-School Medicine and Homœopathy. A Reprint from the *North American Review*. By J. W. Dowling, M.D. New York, 1882.

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Circulars of Information of the Bureau of Education, No. 5, 1882. Maternal Schools in France. Washington, 1882.

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The One Hundred and Twelfth Annual Report of the State of the New York Hospital and Bloomingdale Asylum, for the Year 1882.

Fifth Annual Report of the Managers of the Adams Nervine Asylum. 1882.

Fourteenth Annual Report of the Trustees of the Willard Asylum for the Insane, for the Year 1882.

General acknowledgment and thanks are here made for other reprints, reports of insane asylums, public institutions, etc., whose especial mention passes our limits.

FOREIGN EXCHANGES.

Annales Médico-Psychologiques.
 Archives de Neurologie.
 Archiv fuer Anatomie und Physiologie.
 Archiv fuer die Gesammte Physiologie der Menschen.
 Archiv fuer Path. Anatomie, Physiologie, und fuer Klin. Medicin.
 Archiv f. Psychiatrie und Nervenkrankheiten.
 Brain.
 British Medical Journal.
 Centralblatt f. d. Nervenheilk., Psychiatrie, etc.
 Deutsche Medicinische Wochenschrift.
 Deutsche Archiv f. Geschichte der Medicin.
 Dublin Journal of Medical Sciences.
 Edinburgh Medical Journal.
 Gazzetta degli Ospitali.
 Gazette des Hôpitaux.
 Hospitals-Tidende.
 Hygeia.
 Journal de Médecine et de Chirurgie Pratiques.
 Journal of Mental Sciences.
 Journal of Physiology.
 Le Progrès Médical.
 Lo Sperimentale.
 L' Encéphale.
 L' Union Médicale du Canada.
 Medizinal-Zeitung.
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 Mind.
 Neurologisches Centralblatt.
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 Practitioner.
 Revue de Médecine.
 Revista Clinica di Bologna.
 Rivista Sperimentale di Freniatria.
 Schmidt's Jahrbücher.
 Upsala Lakarefornings Forhandlingar.

DOMESTIC EXCHANGES.

American Journal of Insanity.
 American Journal of Medical Sciences.
 Annals of Anatomy and Surgery.
 Archives of Medicine.
 Buffalo Medical Journal.
 Chicago Medical Journal and Examiner.

Cincinnati Lancet and Clinic.
 College and Clinical Record.
 Detroit Lancet.
 Journal of Inebriety.
 Journal of Physiology.
 Maryland Medical Journal.
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 Nashville Journal of Medicine.
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 Pacific Medical and Surgical Journal.
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THE
Journal
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Original Articles.

THE PATHOLOGICAL ANATOMY OF THE CEREBRO-SPINAL AXIS OF A CASE OF CHRONIC MYELITIS OF NINETEEN YEARS' STANDING.

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PATHOLOGIST TO THE CHARITY HOSPITAL OF NEW ORLEANS.

THE following case of chronic myelitis offers some points of interest, both by its long duration, and by the unusual manner in which the inflammatory process in the cord was produced. Being desirous of accurately knowing whether, in the long course of nineteen years, special pathological changes differing from those which I had previously observed in the spinal cord of acute cases of myelitis, might have taken place in this case, I subjected the cord, medulla oblongata, and pons Varolii to a very close and careful microscopical examination, the results of which will form the chief subject of this paper.

The early history of this case is, of course, based upon the patient's own account, though it appears to be tolerably correct on account of its having been repeatedly told by the patient to different physicians, under whose care he was, at different periods, in the wards of the Charity Hospital, and who recorded it in their respective ward-books. It is as follows :

Thomas McGinnis, a native of Ireland, and at his death fifty-one years old, received, in 1863, in an engagement at Chalk Bluff, Arkansas, during the American Civil War, a gunshot wound through the back of the neck. In the production of this wound the ball entered the right side of the neck, in the region between the fifth and sixth cervical vertebræ, and, passing closely behind the vertebral column, issued at a corresponding point on the opposite side. After being shot he fell to the ground, and for some time remained unconscious; but, on recovering his senses, he found himself completely paralyzed in both the upper and lower extremities. After a short time, however, the paralysis disappeared from the latter, leaving only motor paralysis of the arms, to be followed soon afterward by a marked hyperæsthesia of the neck and both upper extremities, accompanied by acute pains. The grade of hyperæsthesia was such that the slightest touch would cause excruciating pain. Nevertheless, in a short time, the hyperæsthesia disappeared, to be replaced by an anæsthesia which was more marked at one time than at another. In the paralyzed members total suppression of reflex action soon supervened, followed after some time by violent jerks and cramps with temporary rigidity of the muscles involved. About a year later contractures of both arms commenced to take place. At first these contractures maintained the paralyzed limbs in a state of forced extension, which condition after some time changed to one of forced flexion.

Thus the condition of the patient—judging from some accounts received after his death—remained, with perhaps little change for the better or the worse, the same until 1879, when he first attracted attention in the wards of the Charity Hospital; though he may have been, as it frequently occurs in these kinds of cases, an inmate of this institution at a previous time. When admitted, in 1879, to the wards of the hospital, the cicatrices left from the gunshot wound on the sides of the neck of the patient were still distinctly seen. He had fair use of his lower limbs; for, notwithstanding his left foot being drawn in such a position as to assume the appearance of “talipes equinus,” he was able to walk. He began now to experience pains and formication in his lower limbs. Sometimes, when rising from his bed in the morning, his legs would fail him and he would fall heavily upon the floor. Hyperæsthesia of both inferior extremities now set in, which seemed to be more marked in the left limb than in the right. About this time several months had elapsed and the

patient, leaving the hospital, was lost sight of until May, 1881, when he was again admitted to the wards of the institution. His left arm was then contracted against his chest, the contraction appearing sometimes spasmodic. Both hands were closed by a tonic and permanent contraction of all the fingers, which, from the account of the patient had slowly but steadily taken place. The muscles of both hands and arms were much atrophied. There was slight hyperæsthesia of the left upper extremity, but retarded transmission of sensation; the sensibility of the right upper extremity was normal. Loss of motion was complete in both upper limbs, the patient being unable to feed himself, while he had still such a fair use of his lower limbs as to be able to walk even with his eyes closed. The left leg appeared to be stiff, as he dragged it along in walking, and, judging from the clearness of his mind, his brain was apparently unaffected.

In this condition the patient left the hospital during the same month, but returned soon after on June 7th, to be treated for an attack of diarrhœa, to which he had always been subject. Remaining then until September 14th, of the same year, he deserted the institution and went to a boarding-house on Front Levee Street, kept by a Mr. W——, where he remained until August 14, 1882, when he was again brought to the hospital in a state of complete paralysis and unconsciousness, in which condition he died some hours afterward. Upon inquiry it was ascertained that during the greater part of the time the patient lived with the above Mr. W——, he was perfectly helpless, scarcely able to stand, and totally unable to walk, and that during the last six months he had no control over his bowels and bladder, passing his fæces and urine involuntarily in bed while asleep. Mr. W—— furthermore stated, that ever since the reception of the injury the patient had been unable to perform any kind of work for a living, but had to rely solely on his friends for support.

The autopsy, performed a few hours after death, was confined to the removal of the brain and spinal cord. As regards the brain I may state, that though the unconsciousness in which the patient had been brought to the hospital, together with the accompanying clinical symptoms, had been supposed to depend upon a cerebral hemorrhage, not

the slightest effusion of blood could be discovered upon or in the substance of the brain. The only condition found, and to which the patient's state of unconsciousness might perhaps have been attributed, was an abnormal congestion of the larger veins of the pia mater. In all other respects the macroscopical appearance of the whole brain was perfectly normal, inducing me, though to my subsequent regret, to confine my microscopical examinations to the spinal cord, medulla, and pons.

Whilst removing the spinal cord the cicatrices in the skin of the neck, indicating the entrance and exit of the ball, were still observed. Besides these, with the exception of a certain toughness of the tissues surrounding the vertebral column, no other traces of the former injury of the neck, such as a fracture of the vertebræ, etc., could be found. The dura mater was found slightly thickened in the vicinity of the fifth and sixth cervical vertebræ, while the rest presented a normal appearance. The pia mater, on the contrary, though showing no trace of a forcible injury, appeared slightly thickened throughout, while its vessels, especially in the cervical and upper dorsal regions, were completely filled with blood. The spinal cord itself appeared slightly diminished in bulk. In the cervical region, particularly in the neighborhood of the former passage of the ball, it was found to have decreased in its antero-posterior diameter, and, in consequence, appeared flattened. Its consistency was rather less than normal, especially in the cervical region, where it was found soft and elastic when pressed between the fingers. This feeling of softness was owing to the posterior commissure and its neighboring parts of the gray substance having undergone the degeneration to be described hereafter. A number of transverse sections, made through the fresh cord, revealed, that in this region the parts just named were softened to such a degree, as to have

given rise to a tubular cavity in the substance of the cord. Upon the surface of the sections, made throughout the whole cord, it was observed that certain portions of the white substance presented a yellowish-gray appearance. Thus in the cervical region, the gray color was principally confined to the posterior columns, to the posterior part of the left lateral column, and to the periphery of the rest of the white substance. In the anterior, and in the rest of the lateral, columns, however, gray spots were also observed here and there, showing that the degeneration was not strictly confined to definite portions of the cord, such as is generally met with in the so-called ascending and descending degeneration of this part of the cerebro-spinal axis. This discoloration was observed throughout the whole cord, though diminishing in degree in the dorsal, and still more in the lumbar, regions.

Upon the surface of a section made through the medulla oblongata the yellowish-gray discoloration was observed not to be distinctly limited to certain localities, but rather appeared diffused over the whole surface, the gray substance of which appeared abnormally pale; the same appearance was observed upon a section made through the pons Varolii.

After the above macroscopical examination the parts concerned were hardened in Mueller's fluid and then kept in alcohol for the subsequent microscopical studies. These were chiefly made from a considerable number of thin sections taken from different parts of the several regions of the spinal cord, medulla, and pons. While a part of these sections were stained with picro-carmin and hematoxylin, and mounted in Canada balsam, others were left unstained, to be mounted and examined in glycerine. A considerable part of the studies, however, was pursued on teased preparations made from these sections.

Let us now consider the results obtained from these microscopical studies, and begin with stating, that the prominent pathological phenomena observed in this case were: 1st, a congestion and degeneration of almost all the blood-vessels; 2d, a fibrinous exudate effused into the larger and smaller septa of the affected parts of the cord, and giving rise by its pressure upon the nervous elements of the white and gray substance to 3d, atrophy of the nerve-fibres; and 4th, degeneration of the ganglionic bodies or cells.

The discoloration observed by the naked eye in the white substance of the sections made of the fresh cord, as above mentioned, was chiefly depending upon the presence of this fibrinous exudate, which consisted of very minute granules. In very thin unstained sections, or in teased portions of such, the granules were arranged in minute groups presenting the appearance of small granular bodies. A similar arrangement I had observed, a number of years ago, in the granular substance of the gray matter of the cerebro-spinal axis; and it may also be observed on the granules of the protoplasm of many cells, and even on those of pure fibrin. In fact, the fibrinous exudate under consideration resembled in every respect that met with in cerebro-spinal meningitis. It was chiefly found surrounding the larger or smaller blood-vessels of the affected parts, having inundated the larger and, even more so, the smaller septa (fig. 2). Nor was it confined to the white substance, but was equally met with in the degenerated portions of the gray. Like other neo-plastic productions, it very readily absorbed the carmine, a circumstance which greatly facilitated its detection in the stained sections mounted in balsam.

Almost all the blood-vessels were found diseased or degenerated; there were very few, if any, of them observed in a perfectly normal condition; those, as yet not complete-

ly degenerated, were congested with blood corpuscles. The least affected blood-vessels were perhaps those of the pia mater; but even among these there were hardly any met with perfectly normal. Thus, while in most of them the adventitia appeared thickened, the muscular fibre-cells of the muscular layer could only be detected with great difficulty. In those instances, where these fibre-cells could be made out, it was only their transverse sections that were seen in the walls of the vessels, whilst in no instance could they be detected with their long diameter across the vessels. In many of these vessels the protoplasm of the cells of their adventitia had much increased (fig. 1).

In the spinal cord, medulla oblongata, and pons scarcely any vessel was observed in a normal condition. Almost all of them were surrounded by a thinner or thicker layer of the granular exudate (figs. 3 to 7), which, however, not only surrounded the vessels, but could be, moreover, distinctly seen in their interior, where it appeared to fill up the interspaces left by the blood corpuscles (figs. 4, 6, and 7). The walls of all the arterioles, venules, and capillaries appeared pale and granular, their outlines were generally very faint, showing that the vessels were undergoing a slow degenerating and atrophying process. Many of these minute vessels had already become completely atrophied, appearing, by the disappearance of their lumen, like pale granular strings. Others presented dilatations or varicosities in their course, filled up with granular matter, while beyond the varicosity their lumen had disappeared and their walls had atrophied into a string (fig. 5). The degeneration and atrophy of the minute blood-vessels were equally observed throughout the whole spinal cord, medulla, and pons; though they were, perhaps, more general in the cervical portion of the cord, where the exudate was present in greater abundance than in the other parts.

It has already been mentioned that the yellowish-gray portions of the cord, seen by the naked eye upon its fresh sections, represented those parts where the exudate was most abundantly effused, and where, in consequence, the atrophy of the nerve-fibres concerned had reached the highest degree (fig. 2). The changes which the nerve-fibres had undergone in these places represented a simple atrophy, caused by the pressure of the exudate. The gradual decrease of the nerve-fibres in their diameters appears to be caused, in the beginning of the atrophying process, by a diminution of their nerve-medulla, so that as soon as this substance has completely disappeared, nothing remains but the axis-cylinders surrounded by the external sheaths (Schwann) of the nerve-fibres; and as the morbid process still further proceeds, these parts of the nerve-fibres, also, become paler and paler, until finally they may entirely disappear from sight, such as is observed in very thin transverse sections of the spinal cord (fig. 2).

But it must not be imagined that this atrophy of the nerve-fibres takes place evenly throughout their whole length. On the contrary, while in one part of a fibre the whole medullary sheath may be still intact, it may have completely disappeared in another, and it is thus that the nerve-fibre, before becoming atrophied throughout its course, shows itself in a more or less varicose form. This condition of the nerve-fibres is distinctly observed in very thin longitudinal sections of the diseased spinal cord. In such sections it is seen, that while some of the remaining nerve-fibres present a varicose appearance, nothing is left of others but their axis-cylinders; or even these may have entirely disappeared (figure 1). In transverse sections, on the other hand, a great difference in the diameter of the nerve-fibres is observed, which, however, is not to be compared with the difference existing in the diameters of the

fibres of a tract in a normal cord, but to the fact that in the diseased cord in question the larger sections of fibres represent those of varicosities, while the smaller ones have passed through axis-cylinders surrounded only by the tubular sheaths. It remains to be remarked that, with a few exceptions, the axis-cylinders of the nerve-fibres in this case were not swollen, such as I have observed in cases of traumatic injuries of the spinal cord, but on the contrary had generally preserved their respective normal diameters.

In the gray substance of the cervical portion of the cord, especially in the vicinity of the posterior commissure, the exudate had also been abundantly effused, and had given rise not only to the degeneration and final disappearance of the ganglionic bodies, but to the final breaking down of this portion of the gray columns, causing the tubular cavity mentioned above. Thus, almost all the ganglionic bodies of the anterior horns of this region had disappeared; only a few belonging to the outer or lateral group had remained.

Although the fibrinous exudate had been effused into the septa of the whole spinal cord, it was much diminished in quantity in the dorsal and lumbar regions; in consequence, the atrophy of the nerve-fibres, and the complete degeneration of the ganglionic bodies, also, had taken place only to a small extent in these regions. In teased preparations, however, the exudate was still found to surround a great number of blood-vessels, as already mentioned, even in the conus medullaris. The same conditions were observed in the medulla oblongata and in the pons Varolii. Embedded in the exudate were observed a number of small nuclei and cells, which very probably represented colorless blood corpuscles, escaped from the vessels with the fibrinous effusion.

The most interesting phenomenon observed in this case, however, was the peculiar degeneration of the ganglionic

bodies, especially of those distributed throughout the medulla oblongata and pons Varolii. These bodies presented different appearances according to the degree of degeneration they had undergone. Those which showed the least changes in their appearances, of course, were met with in the lumbar and in the middle and lower third of the dorsal regions. But even here the appearance of a great number of these bodies was abnormal; for in many of them the nucleus had either entirely disappeared, leaving, however, the nucleolus behind, or it appeared indistinct with a peculiar refractive lustre. In others, again, the pigment granules appeared increased in number; or the body itself was rounded off and without processes. In the cervical region the greater part of ganglionic bodies had altogether disappeared, as already mentioned, while those remaining presented the appearances just described, or were even observed in a higher degree of degeneration. The greatest changes in the ganglionic bodies, however, were observed in the medulla oblongata and pons Varolii, the very parts in which, from my macroscopical examination, I had least expected them. The nature of the degenerative process which these bodies had been undergoing appeared to me peculiar, and differing from those morbid processes generally observed in the elements of other organs. I have carefully studied it on a large number of ganglionic bodies, isolated from the other nervous elements by teasing thin sections taken from the spinal marrow, medulla oblongata, and pons Varolii with finely pointed needles, and shall now describe the appearances which these bodies present in the different stages or degrees of their degeneration.

In examining very thin stained sections, taken from the most degenerated part of the spinal marrow in the cervical region and mounted in Canada balsam, I observed a number of smaller or larger, clear, and slightly refractive spaces;

they were also met with in stained sections of the medulla and pons, mounted in balsam, where they differed from those observed in the spinal marrow by being more numerous, and many of them also larger. But as, on account of the great transparency of the Canada balsam, the examination of the exact details of the histological elements of a tissue mounted in this medium, is rendered very unsatisfactory, I turned my attention to the examination of the thin unstained sections, which I had mounted in glycerine, and in which I found the outlines of the above-mentioned clear spaces better defined. Although I had been at first inclined to regard these bodies as representing globules or accumulations of fat, the products of a fatty degeneration of the nervous elements concerned, I found now, that though they exhibited some of the optical characters of fat, they were nevertheless wanting in the high refraction of light characteristic to true fat-globules, and when I proceeded to isolate these bodies by teasing very thin sections, I found them to represent ganglionic bodies, or connective-tissue cells, which had undergone a peculiar fatty metamorphosis. The observation which I made, of their remaining unaffected by boiling the sections in ether, inclined me to think, at one time, that they might be amyloid in their nature. Accordingly I applied to them the known tests for the so-called amyloid substance, such as iodine, sulphuric acid, and methyl violet, to which they, however, completely failed to respond; for, the application of iodine, either alone, or with the addition of sulphuric acid, simply stained them yellow, while they were colored blue by methyl-violet. I regret to have neglected the microscopical examination and the application of these tests to the elements under consideration in their fresh condition, that is, before the spinal cord, medulla, and pons were put in Mueller's fluid for preservation, as I was engaged in some other subject at the time when the autopsy was made. My sub-

sequent examinations of these bodies, however, showed me conclusively, as will be seen directly, that the degeneration in this case was not amyloid in its nature. Besides, the deposition of the morbid product into the walls of the blood-vessels, which in true amyloid degeneration is so prominent a trait, was entirely wanting in our case. On the contrary, the pathological process taking place here was in fact a peculiar, slow, fatty metamorphosis, leading, in many of the anatomical elements affected, to a crystallization of the morbid product. The principal elements affected were the ganglionic bodies of the gray substance, while the degenerated bodies found among the nerve-fibres of the white substance very probably represented the nuclei, lodged in the sheath of Schwann, of the dark-bordered nerve-fibres, as well as the minute cells of the neuroglia, of the adventitia of the vessels, and of the fibrinous exudate. In the spinal marrow the most of these bodies were small in diameter (figures 1 and 2), for which reason I regarded them as representing the degenerated minute cells just named. In transverse sections the most of them are round in form, while in longitudinal sections they appear more oval; this difference of form in the different sections is owing to the general oblong form of the nuclei of the nerve-fibres and of the adventitia of the vessels. There remains no doubt about the origin of these bodies, lodged in the adventitia of the blood-vessels, and in the exudate surrounding them, as seen in figures 1, 3, and 7. There were also a number of larger ones, representing degenerated ganglionic bodies, met with in the anterior horns of the spinal cord, though comparatively not as many as in the medulla oblongata and pons Varolii.

In studying the difference existing in the appearance of a number of these degenerated ganglionic bodies, we are to a certain extent enabled to form some idea of the peculiar morbid process and of its progressive phases, to which these

bodies have fallen a prey. The ordinary process of fatty degeneration consists, as we know, in a gradual metamorphosis of the protoplasm of the cells or other histological elements into fat. The latter, at first, appears in the protoplasm of the cells in the form of very minute fat-globules, which eventually fuse with one another to form larger ones. In the degenerative process of the ganglionic bodies under discussion, however, no minute fat-globules make their appearance; on the contrary, the normal granules of the ganglionic body gradually lose in definition, the whole body presenting the appearance of a turbid dull lustre, while its outlines appear slightly darker than they normally are. The outlines of the nucleus in the interior of the body are rendered faint and indistinct, to eventually disappear altogether, while the nucleolus appears more prominent and holds its place until the degeneration has considerably advanced (figures 8, *a* and *b*). Judging, therefore, from the appearance which these bodies present in the first stage of their degeneration, I am inclined to regard the degenerative process in this case as commencing in the so-called parenchymatous inflammation, or cloudy swelling of Virchow. As the process advances, the granules, nucleus, and nucleolus disappear entirely, and the ganglionic body, while losing its shape, changes its optical characters by becoming more refractive (fig. 8, *c*, and figs. 9, 11, and 12); though, at this stage of the metamorphosis, many of the bodies still present a faintly granular appearance. As already mentioned, they remain unaffected by being boiled in ether, nor are they affected by a 30-per-cent. solution of caustic potash; the only effect which this reagent produces on the section containing them, is to render the tissue much clearer for their study.

In the medulla oblongata, it was especially the ganglionic bodies of the substantia reticularis, but also some of the

nuclei of the olivary bodies, that were found to undergo the degeneration here described (figs. 8, 9, 10, and 11). In the pons Varolii the degenerating bodies were likewise met with in the substantia reticularis, but also in the gray substance found in the interspaces of the bundles of transverse fibres, connecting the hemispheres of the cerebellum (fig. 12). Even in the midst of the latter, some of these bodies, apparently connected to nerve-fibres (fig. 12, *c*), were observed to be lodged; but whether they represented in this place degenerated ganglionic bodies or the cells of the external sheath of dark-bordered nerve-fibres, I could not satisfactorily ascertain. In the pons Varolii, a number of smaller or larger crystalline masses, some of which still showed the shape of the degenerated bodies in question, were met with; they were highly refractive in their appearance, and when examined on the dark field of the polariscope, were found to polarize the light in a brilliant manner, showing the complementary colors yellow, red, and blue (fig. 13). These masses were principally found lodged between the nerve-fibres of the transverse bundles of the pons, or upon them; some of them were quite long, though transversely broken in several pieces; these were apparently formed from several degenerated and crystallized ganglionic bodies.

Judging from the great number of these degenerated ganglionic bodies, I presume that the degenerative process had ascended still higher up into the brain, through the crura cerebri, even to the larger ganglions of the organ; and it appears to me very probable that the smaller blood-vessels of the rest of the brain were likewise diseased. I cannot but again regret that I neglected the preservation and examination of the rest of this organ. The negligence, however, which I committed in this case, again shows how little we can rely on a mere macroscopical examination in diseases of the cerebro-spinal axis.

I abstain from any remarks on the general pathology of the case, leaving it to the reader to draw his own conclusions from its rather meagre history. But as regards its ætiology we may judge from the absence of any trace of forcible injury to the spinal cord, and also from the symptoms appearing directly after the reception of the gunshot wound, that the inciting cause of the myelitis may be found in the concussion to which the spinal cord was subjected by the passage of the ball through the muscles of the back of the neck.

Explanation of the Illustrations.

Fig. 1.—Transverse vertical section of the spinal cord in its cervical region, showing the exudate and the atrophied nerve-fibres. *a*, pia mater, with one of its blood-vessels, in the adventitia of which a degenerating cell is observed; *b*, spinal cord, showing the atrophying varicose nerve-fibres embedded in the fibrinous exudate. Some of the smaller degenerated bodies described in the text are also seen distributed throughout the section.

Fig. 2.—Horizontal section of the spinal cord in the cervical region, showing the sections of the atrophying nerve-fibres and axis-cylinders embedded in the fibrinous exudate, which is seen confined to the cord. *a*, pia mater: *b*, portion of spinal cord divided by two septa; at its periphery the fibrillæ of the layer of neuroglia surrounding the cord may be observed.

Fig. 3.—Represents a blood-vessel from the lumbar portion of the spinal cord, with its adventitia thickened, and surrounded by fibrinous exudate, in which some of the degenerated cells may be seen. The vessel is filled with blood corpuscles, which, by mutual pressure, have assumed an hexagonal form.

Fig. 4.—Arteriole, taken from the pons Varolii (basis), and containing blood corpuscles and granular matter (fibrin); it is also surrounded by the fibrinous exudate.

Fig. 5.—Degenerated capillaries with varicosity.

Fig. 6.—Capillary vessels, surrounded by portions of the exudate.

Fig. 7.—Minute artery, surrounded by the exudate, containing a degenerated cell; in the walls of the vessel some of the muscular fibre-cells are still seen in their transverse sections.

Fig. 8.—Ganglionic bodies, of the medulla oblongata, showing

their appearance in the different stages of the degenerative process.

Fig. 9.—Degenerated ganglionic bodies, from a section of medulla oblongata boiled in ether.

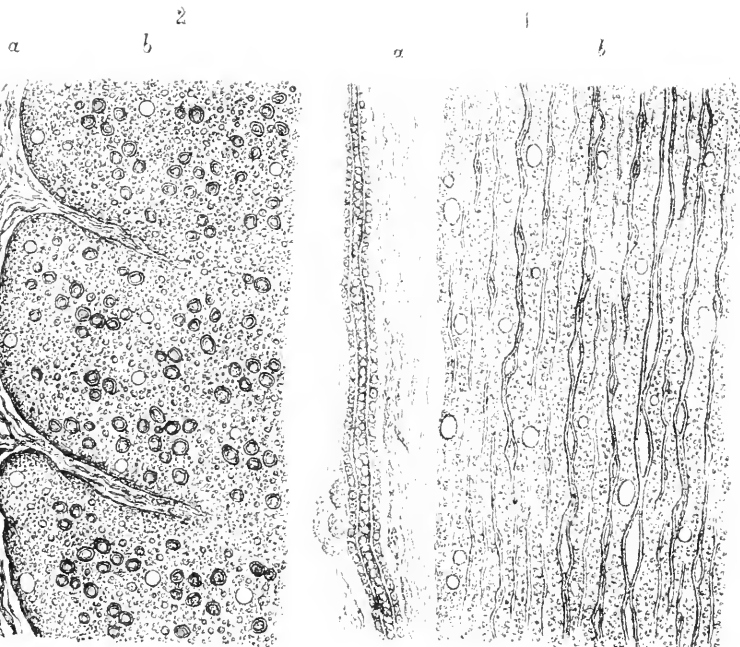
Fig. 10.—Degenerated ganglionic body, treated with iodine.

Fig. 11.—Degenerated ganglionic bodies, of medulla oblongata treated with a 30-per-cent. solution of caustic potassa.

Fig. 12.—Degenerated ganglionic bodies, from the pons Varolii. *a*, two bodies, surrounded by nerve-fibres of the gray substance—one of the bodies still shows the nucleus; *b*, body, showing its refractive appearance; *c*, a degenerated body, embedded in a bundle of nerve-fibres, and still showing the nucleus and also its granular nature; *d*, another body, showing two nuclei; *e*, a degenerated body, still showing its granules, embedded and connected to dark-bordered nerve-fibres.

Fig. 13.—Crystalline masses met with in the pons Varolii. *a*, a crystalline mass appearing to surround a degenerated blood-vessel, embedded in the gray substance of the pons; *b*, *c*, and *d*, other crystalline masses, of irregular form, embedded in the bundles of transverse fibres of the pons.

Figures 1 and 2 are magnified about 275 diameters, while the other figures are magnified about 420 diameters.



drawn upon the stone by the author

NOTES ON SPANISH ASYLUMS FOR THE INSANE.

By E. C. SEGUIN, M.D.

BEING in Spain during several weeks of the past winter (1882-3), and having occasion to pass through the cities having the majority of the insane, it occurred to me that it would be interesting to visit all accessible institutions, and take short notes of their condition.

Wherever I attempted to carry out this intention I was received by physicians and other officials with even more than the proverbial courtesy of Spaniards. In every institution every thing was done to render my visit advantageous and agreeable, and I shall retain a pleasant recollection of my transient relations with these gentlemen.

In several institutions I was shown every thing at once upon my (unexpected) arrival; and nowhere did I detect a desire to avoid the critical observation of a stranger, or attempts to lead me past certain wards or places.

It is proper to add that if evidences of a knowledge of insanity appeared only here and there, in a minority of the medical men, there was also a promising disposition to admit the backwardness of the speciality in Spain; and in several cities the physicians expressed themselves in strong terms against the neglect of the insane by the local authorities.

I purpose using my material as follows :

1. Giving a brief account of each institution visited, from notes taken at the time. In this I follow the order in which I visited the various cities.
2. Reproducing some of the scanty and nearly useless Spanish statistics of insanity.
3. Expressing truthfully and as courteously as possible the opinions I formed as to the care and treatment of the insane I saw.
4. Lastly, considering what means might be resorted to for rapid improvement.

MEMORANDA OF VISITS.

ASYLUMS NEAR MADRID.—Entering Spain by way of San Sebastian, and stopping one day at Burgos, I was deterred, chiefly by the extreme unpleasantness of the season (end of December, 1882), from seeing Valladolid and Salamanca, thus missing two important asylums. Near Madrid are three institutions, two private; one of the private I failed to visit.

I. The government asylum at Legañes, known as "casa de dementes de Santa Isabel." This is the only institution in Spain controlled by the general government; it was founded in 1852. It is situated in a suburb of Madrid, fourteen kilometres (about eight miles) on a line of tramway which extends out of the city by the gate and bridge of Toledo. The buildings are very plain, but neat. They have the radical fault of being too small, and especially of being devoid of large airing courts. Sisters of Charity are in charge of all the departments, and one of them, a very intelligent and bright woman, showed me about. A visiting physician sees the inmates every morning, and often in the early evening. I did not have the advantage of meeting this gentleman, and so failed to obtain any purely medical information.

Both private and pauper patients are received ; the latter are clad in uniform and sleep in large dormitories. I found them badly crowded in small day-rooms and courts—all idle. Private patients of the first-class have the use of two rooms ; second-class patients of one. The clothes- and linen-rooms were models of neatness, and showed even artistic taste in arrangement of contents. The good Sisters were also proud of their kitchen department, where a smiling Sister, nearly as broad as she was high, was superintending the production of dinner. A complex and showy hydrotherapeutic room, with marble tubs, douches, and jets of all varieties, supplied with an abundance of hot and cold water, was shown me. It was stated that during most of the year this was much used, partly for hygiene and partly for treatment. Per contra there were no evident means of employing or amusing the patients.

There are about two hundred (200) inmates, two thirds of whom were males.

Out of this number there was only one in restraint ; a noisy female patient who had on an ordinary camisole. As well as I could understand, the Sister said that they use as little restraint as possible. I looked sharply for hæmatoma auris but saw none.

II. Private 'asylum at Carabanchel, owned and managed by Doctor J. M. Esquerdo, who is considered one of the most eminent alienists of Spain. Most unfortunately, during my stay in Madrid he was away visiting his winter establishment at Alicante. Judging by the excellence of several pamphlets of his that were given to me, I feel sure that I thus missed most instructive conversations. I was received by his nephew, Dr. Santiago Esquerdo, who is resident physician and executive officer of the asylum.

The institution (opened in 1877) is situated in the village of Carabanchel, about three miles out of Madrid, on the

same line of tramway as that which leads out to Legañas. Here, in rather small grounds, is a series of one-story buildings arranged to form a double square; one square for men, another for women. Each side of the house has its own gardens and yards ("patios," very much as exist in the ordinary houses of South Spain). The quarters for the various classes of patients are different. First-class patients, who pay \$100 per month, have a parlor, bedroom, and two alcoves, in one of which the attendant sleeps. Those suites are furnished in red, yellow, blue, etc., and open directly upon comfortable piazzas and gardens. Second-class patients, paying \$60 per month, and third-class ones, paying only \$25 per month, have each one and two rooms, variously though plainly furnished. All the rooms I saw were clean and well-lighted, but heavily barred and locked. On the female side there is a piano in a common parlor, and on the men's side a smoking-room and a billiard-room. The buildings, originally cheap, were out of repair; the walls, floors, etc., need patching and painting. The beds and linen were good.

The female patients have a dining-room for each class; but a number of them eat alone. All the male patients who are able to be about, the majority, eat simultaneously in a long and not over cheerful dining-room. As I dined there, perhaps it would be interesting to relate what I saw. There were three tables, one on a slightly raised dais for the first-class patients and the medical officers; two others on one level occupied by second- and third-class patients. I sat at the raised table with six patients, Dr. Esquerdo, Jr., and two assistant physicians. The dishes and qualities of wine were different for the three tables, but the same bread was served out to all. The food was true Spanish, but good; indeed at our table we had quite a series of courses and a complicated dessert (extra because of Sunday); the

red wine was substantial and strong, tasting a little of the classic skins of Spain. The service at our table was well and very quickly done by a small boy in uniform. He, and an attendant at each of the other tables, knew just how much wine to give to patients, and needed no supervision. My impression is that each patient's glass, holding perhaps two ounces, was filled three times. Coffee and cigars came after the dessert for first-class patients; the others had already begun to smoke cigarettes. Quite a number of second- and third-class patients were chatting among themselves; others went off quietly to their rooms. At our table all behaved perfectly, and were as polite as well-bred Spaniards invariably are. I was much pleased at thus seeing how comfortable the patients were in one way, and on what a footing of friendly equality they were with the medical officers.

There are about sixty (60) inmates, of whom one-third (21-25) are females.

I was shown several cases of general paralysis, one in a stage of depression. There was an unmistakable female case of this disease, with the well-known physical and psychic symptoms. A number of epileptics in the house. No hæmatoma auris seen.

Dr. S. Esquerdo, no doubt reflecting his uncle's opinions, expressed great admiration for non-restraint, but had a doubt as to its absolute application. He asserted that they used the camisole and restraint in bed very rarely. He showed me a padded room, large and well-lighted, but it was not thoroughly matted. On the day of my visit there was only one patient under restraint,—a violent, biting woman with a camisole.

Dr. Esquerdo, Sr., has translated Guislain's classic "*Leçons*," and is now actively engaged in securing legislation to protect insane criminals, especially those not insane in an

evident way. I very much regret not having had the advantage of hearing his opinion and views on the administrative and medical questions involved in asylum management.

III. Insane wards of the Provincial Hospital of Madrid. This large and venerable institution, nearly two hundred years old, has a number of rooms in its half-basement for the temporary (?) reception of insane patients, prior to their transfer to Legañez. These rooms were dismal and crowded. I am sure many cases of dementia and epilepsy are here permanently, in vary bad quarters. The physician of these wards not being present at the time of my visit, I obtained no medical information. Restraint seemed freely used.

ZARAGOZA.—The insane of this city, and of nearly all Aragon, are crowded into the Provincial Asylum, or, more properly, the insane department of the Provincial Hospital. A new, modern asylum is being constructed out in the country.

IV. The Provincial Asylum (or Manicomio) of Zaragoza is one of the oldest in Europe, having been founded in 1425, or only sixteen years after the first of Spain's remarkable series of charity foundations in the fifteenth century.¹ It was, for a long time, one of the model institutions of Europe, praised by Pinel, Fodéré, and other writers on insanity. In August, 1808, during the celebrated siege by the French, the entire hospital was burned. New buildings were soon erected in another part of the city, one for general hospital purposes, the other as an asylum, in the same grounds. I was shown through by Dr. Vicente Almenara, the physician-in-chief. He is in reality a visiting physician; but several internes reside in the institution.

Rooms for single patients are numerous, but there are

¹ Asylum of Valencia, 1409.

also dormitories for large numbers of patients. All the rooms are very gloomy, ill-ventilated, and with heavily-barred small windows. A wing accommodates some thirty epileptics. Paralytics (ordinary ones, I mean) are numerous (received for dementia?). Dr. Almenara condemned the building in strong terms, and expressed the hope that some of the pavilions of the new asylum would before long be ready for occupation.

There are here four hundred and thirty patients (430); proportion of sexes not obtained.

In 1846 there were two hundred and forty-two inmates; in 1852 there were two hundred and seventy-three, and the same number in 1859.¹ In 1880 the number had increased to three hundred and ninety-eight.²

Owing to the fact that none of the physicians spoke French, I was unable to obtain any purely medical data. It was, however, evident that the recognition of general paralysis was not the rule.

Restraint is little used; I saw none. Dr. Almenara assured me that, from time immemorial, with members of religious orders in charge of patients, kind treatment had been the rule. Noisy and violent patients are isolated in small rooms which are ill-lighted and wretched, but not filthy as described by Dr. Desmaisons³ in 1859. Patients are never tied in chairs.

V. The new asylum. A private citizen gave a large piece of ground a short distance out of the city for this purpose, and the provincial authorities not long after voted a credit of a large sum, for Spain, viz.: twelve million reales, or about \$600,000. It is said that careful studies were made prior to the adoption of a plan. One pavilion of the new manicomio is finished and nearly ready for occupation.

¹ Desmaisons, "Das asiles d'aliénés en Espagne," p. 82, Paris, 1859.

² Official Report of Señor D. Castor Ybanez de Aldecoa, 1880.

³ *Op. cit.*, p. 79.

It is a quadrilateral building of three stories, very much like a wing of an ordinary hospital; only the entrances are in the centre instead of at the ends. The lower floor contains dining- and day-rooms; the other floors are for general dormitories. Large windows open on either side and direct ventilation is thus obtained; ventilating apertures have also been made in the walls. The windows are lightly and pleasantly barred. The attendants' rooms are in the centre of each floor (except the first), and have one window opening into the dormitories at either end, to secure free supervision of patients. There are no rooms for single patients. There is a bath-room in the building. Each pavilion is intended to accommodate one hundred patients; each will have its own large airing-court, and the ground-floor next the court opens upon a large, well-protected piazza, or walk. The workmanship was good.

It is intended to erect eight of these pavilions, and the necessary building for executive purposes. A medical director with full authority will probably be appointed.

If this plan is well carried out, it will give Zaragoza the best public asylum in Spain, and restore to it some of its old philanthropic prestige.

Dr. Don Joachim Gimeno, Professor of General Pathology in the University, drove me out to the new asylum, and showed me every courtesy.

BARCELONA.—In this prosperous and progressive city there are three private institutions for the care of the insane, and a part of the general Provincial Hospital is also set apart for them.

VI. The Provincial Hospital, Santa Cruz, within the city, was erected more than two centuries ago, and is, consequently, very defective. In its insane department some changes have been made, but the day-rooms and "cells" are dismal; many still retain the original low-arched ceilings.

All are, however, clean. There are no grounds for the exercise of patients, only small inner courts.

The visiting physician is Dr. Pi y Molist, a gentleman who has held the position for nearly twenty years, and is one of the corresponding members of the Société Médico-Psychologique of Paris.

He has about three hundred patients under his care, more than half of whom are males. In 1855 it contained two hundred and two insane, of whom one hundred and nine were males, and ninety-three females.¹

There are very few simple acute cases, mostly chronic dements and epileptics, no female case of general paralysis. Saw one hæmatoma auris in a male patient having chronic mania.

The doctor considers general paralysis as not very frequent. Between Dr. Esquerdo's estimate of 8 to 10 %, and Dr. Mendez' (*vide infra*) 20 %, he would keep nearer the former figures. Can recall only two or three female paretics in his long experience.

There are no malarial or typhoid fevers, and very little phthisis among the patients. No clinics are held, which is all the more surprising, as students daily crowd the hospital to receive clinical instruction in other branches. The doctor was evidently deeply sensible of the defects of the building, and lamented the lack of occupation for the patients.

Restraint. In the last century and during the first part of this one, patients here were chained, and some wore iron collars. None of these contrivances have been preserved as relics. I saw one chain in use, however: a patient lay in bed with leather manacles and ankle-rings, and a cloth tightly bound across his chest; the two ankle-rings were connected by a short strap, and this in turn was fastened to the foot of the bed by a chain. Patients are not, however, fastened in chairs, and "cribs" are unknown.

¹ Pi y Molist, cited by Desmaisons, *op. cit.*, p. 98.

VII. Manicomio of Nueva Bethlen. This private institution, opened in 1857, is owned by its medical director, Dr. Juan Giné y Partagas. It is admirably situated, just beyond the suburb of San Gervasio, on a rise of ground terminating in a large hill. The grounds are quite extensive and the gardens very fine. Camelias and roses were in bloom, and oranges dotted the trees at the time of my visit (January 7th). From the house, one has a beautiful view of Barcelona, of the hill and fortress of Monguid, and beyond, of a great stretch of the calm, blue, inland sea. In the absence of Dr. Giné, I was courteously shown about by the chaplain, a clever young priest who spoke French. The buildings face southeast, and are protected from east winds by the hill referred to.

The first-class patients, paying thirty-six dollars per month, have each a very neat, comfortable room. Some of these chambers open directly upon a pleasant garden, others on "patios" (courts) which are neat and comfortable. Second-class patients (twenty-five dollars per month) sleep two in a room; and third-class patients (eighteen dollars per month) are three in one room. The dining-rooms are common for all classes, seated at different tables, however. On the male side, the resident physician, Dr. Ribas, and often Dr. Giné himself, sit at the head of the first table; the chaplain at the second. This room is decorated and cheerful. Noisy and violent patients are in small, dark, but well-ventilated rooms in a sort of wing, all opening upon a "patio." There are parlors, a billiard-room, and a sort of gymnasium in a court. The female side of the house is like the male, except that the parlors are more pleasant.

The men have boy attendants, the women are taken care of by Sisters of the Order of St. Vincent de Paul, but are also allowed boy attendants if desired.

The patients of both sexes had really free access to

the gardens, with apparently little supervision (they were watched, however). The majority of them go to chapel twice a day, from choice (and for lack of any thing to do?).

I met Dr. Galceran, who holds the position of consulting physician. He considers that from two to four per cent. of all the cases received at Nueva Bethlen are paretics. In a long time only one female case has been observed. He claims that they have *cured* two cases of this disease; one of them has now been well four years; his improvement accompanied and followed a severe attack of pneumonia. General paralysis is rare in Spain because there is less alcoholism.

Through some inadvertence I failed to learn the number of inmates. In 1880,¹ there were 102 patients: 59 males and 43 females.

Restraint is employed, though sparingly.² Camisoles and leather muffs are used; some patients are tied in their beds while camisoled. No case of hæmatoma. Everywhere I saw evidences of humane treatment and of personal kindness.

I called on Dr. Giné the same evening, and again in a few days. He is Professor of Clinical Surgery in the Medical Department of the University, and author of quite a number of medical text-books; one of them, a volume of six hundred pages, entitled "*Tratado teoretico—practico de Frenopathologia*." He speaks French well, and his opinions had all the clearness and force which come from large personal experience. I greatly enjoyed these conversations, and highly appreciated the courtesy of his reception. The following are the main points of his remarks:—

General paralysis has greatly increased in Spain during the last fifteen years. This is owing partly to the greater

¹ Official Report.

² In the Official Report cited, the management is claimed as on "non-restraint principles."

abuse of alcoholic liquors (alcoholism a predisposing cause), but also because of the increased severity of the struggle for existence. He does not believe that sexual excesses are a frequent cause of the disease. Syphilitic general paralysis (or a condition resembling it) he considers very grave—has never known it to get well. On the other hand, he has notes of four or five cures of the non-syphilitic form of paresis; some of these have been published in his journal, *Revista Frenopática Barcelonesa*. Dr. Galceran's two cases are probably included in these. The melancholic and hypochondriacal forms or styles of general paralysis, so frequent in France, are here very rare. Formerly, most of the acute cases were simple ones of mania and religious melancholia, allowing of many cures.

As regards restraint, Dr. Giné is quite advanced. He has great admiration for Conolly and Charlesworth, and thinks "non-restraint" is an ideal to be always aimed at. Still, in practice he finds some cases requiring mechanical restraint; and he sanctions the use of camisoles, soft wristlets, belts, and muffs. He thinks that manual contention by attendants causes much more irritation to the patient, and tends to give rise to a feeling of rancor or hatred toward the nurses.

VIII. Asylum of San Baudilio de Llobregat, usually called "San Boy," founded in 1854. Permission to inspect this large and important private institution was readily obtained by means of a card of introduction to Señor Don Roman Rodriguez de Lacin, the President of the Board of Trustees. I was received with genuine Spanish courtesy, and indeed Señor Rodriguez insisted upon going with me to the asylum. Accordingly, on the morning of January 9th, we drove out in company with two other members of the Board of Trustees, young gentlemen who appeared interested in the work.

San Boy is at a distance of about nine kilometres (nearly five miles) from Barcelona, near the line of railway between that city and Valencia. It is also possible to go to the asylum by taking a train as far as the hamlet of San Baudilio, about a mile from the house. The property is quite large, but is unfavorably situated in a low valley near the bank of a wretched, muddy stream called the Llobregat, which often overflows a large piece of bottom-land, and occasionally cuts off communication. I might here state that I was shown one case of remittent fever in the infirmary. The view from the house is limited to the garden and some distant mountains.

The grounds and gardens are extensive and well laid out ; they must be very pleasant at the favorable seasons of the year. Some farming is done by poor patients.

The buildings, as in some other institutions visited, are of two stories. As a rule, the upper floor is used by night, and in the daytime the patients are on the ground-floor and out-of-doors, in the garden, or in large "patios." The various dining-rooms, billiard- and reading-rooms are on the ground-floor, as are also some of the apartments for first-class patients. Around the "patios" or courts are the well-sheltered piazzas so common in Spain. The rooms for private patients of these classes are very much like those at Nueva Belen, but less handsomely furnished. In the second and third classes, from two to four patients sleep in one room, with an attendant. The dormitories for poor patients contain from ten to thirty beds. The tiled floors were absolutely clean, and the pillows and sheets white. All the sleeping-rooms, with the exception of one or two occupied by filthy patients, were remarkably sweet and clean. The beds were doubtless too close together, but it must be borne in mind that they are used only in sleeping hours, and that their direct ventilation by windows and doors is enforced. The quarters for vio-

lent and wholly demented patients were very dark and small.

Before leaving the subject of the building it may be well to state, that in the entrance court is a fine marble statue of Brierre de Boismont, erected by Dr. Antonio Pujadas, the founder and first medical director of the asylum, who had been a pupil of the great French alienist. Over the outside door-way is a bust of Pinel.

Dr. Caballero is the present medical director or physician-in-chief. He resides in the institution, as do a sub-director and several assistants (including an apothecary).

The total number of cases now in San Boy is nearly seven hundred (700), of whom two hundred and sixty (260) are females. These patients come from various sources. First, private patients of three classes from any part of Spain, though naturally mostly from Barcelona and vicinity. Second, the poor insane of the province of Barcelona, who are paid for by the local government. Third, soldiers from all parts of Spain, under a contract with the general government. Fourth, patients may be sent by any of the provinces.

According to one of the trustees, the actual average cost of maintenance per capita (exclusive of physicians' salaries and interest on capital engaged) is about 75 centimes, or nearly 15 cents per diem.

There are all possible forms of mental diseases here, of course. The percentage of general paralysis is "large." Many epileptics. No female paretic now in the house. Dr. Caballero has seldom seen a case.

One case of hæmatoma auris seen; unilateral, in a paretic.

As many patients are employed as will work. A good many are on the farm, and in the gardens; some in shops. A number of female patients were sewing, washing, and

ironing: not many, however. Probably many patients lack the ability to do any thing useful, besides being unwilling.

The idea of absolute non-restraint is not accepted here, but in practice is approximated. On the day of my visit there was no one in restraint. Camisoles, sheets, and pieces of cloth are employed as means of restraint. Wristlets and anklets are not used. Tying in chairs is not done, and "cribs" are unknown here.

IX. Instituto Frenopatico, situated at Corts de Sarriá, N. E., a suburb of Barcelona. It is owned and managed by Drs. Dolsa and Llorach. The former gentleman received me, and showed me about. Opened in 1867 or 1868.

The "instituto" is nearly as well situated as Nueva Bethlen. The gardens, though smaller, are more open and more free to the patients; the rooms of all manageable patients (who are a majority) opening directly upon gardens in which they may wander, of course under surveillance. The grounds are surrounded by high walls. The rooms are on very much the same plan, and quite as comfortable as those at Nueva Bethlen. The first-class patients eat with the physicians in a separate dining-room. There are billiard- and reading-rooms; not much frequented. A room with baths and a variety of douches and sprays was shown; there was an abundance of hot and cold water under proper control. The douches are used for moral and also for strictly medicinal effects. Throughout the building are many piazzas where patients can walk in wet or excessively hot weather.

Noisy and filthy patients are in a separate building, with an enclosed court or "patio." There are here some dozen narrow dark rooms; two of them, which are padded, have deep bunks instead of bedsteads. Quite a number of these patients were tied in bed.

There are one hundred and ninety (190) patients in this

institution ; about two thirds males. Many are epileptics with psychical symptoms.

The attendants appeared kind and intelligent.

Dr. Dolsa considers general paralysis as now much more frequent than fifteen years ago. He would give at 20 % or 25 % the proportion among his admissions. Has seen some three hundred paretics, and recalls only two or three female cases ; none now in the house. He is of the opinion that the chief cause of the increase of paresis is the greater intellectual strain and the fierce competition now required in the struggle for existence. This theory he thinks applies well to the province of Catalonia, all the more as he does not think that there has been *much* increase in the consumption of alcoholic beverages.

Dr. Dolsa has never tried non-restraint, and does not believe it to be either practicable or desirable.¹ There are cases in which mechanical restraint is imperative, and it causes less irritation and anger on the patient's part than restraining by hands.

No case of hæmatoma. Dr. Dolsa considers this lesion as evidence that the ear has been pulled or boxed, though he admits that very rarely it may arise spontaneously.

Before leaving Barcelona I sought an interview with Dr. Rafael Rodriguez Mendez, Professor of Hygiene in the University, and for several years (until last year) Medical Director of San Boy. His conversation was fully as interesting and instructive as Dr. Giné's.

Dr. Mendez thought that nearly 20 % of all cases at San Boy were paretics. Has seldom seen the disease in a female. He considers alcoholism to be the chief and best demonstrated cause of general paralysis ; syphilis comes next in

¹ Drs. Dolsa and Llorach in their description of the institution and prospectus published in 1874, are still more outspoken. "Non-restraint, considered from the point of view it is represented, is an absurdity." "The practice of non-restraint must be illusory if not highly pernicious and criminal" (l). pp. 8 and 9.

importance. Such conditions as anxiety, overwork, grief, etc., he would relegate to the rank of uncertain and unimportant causes. He recognizes the great increase of paresis within the last ten years, and considers this increase to be as marked in the country as in cities. Sexual excesses are not a cause of general paralysis, but may be of tabes. Myelitis is rather common in Spain; hysteria is frequent and severe. Within the last eight years has twice known public church ceremonies held in Barcelona in cases of demoniac hysteria; the patients being brought to church to have the Evil One exorcised. Chorea not very common and seldom severe. Is fully satisfied with results of arsenic treatment (which he carries out in thorough style).

Dr. Mendez does not think that any of the Spanish statistics of insanity are reliable. He gave me a copy of his pamphlet on the subject, and further on I give an abstract of it.

VALENCIA.—The phrase “the first shall be last,” is sadly illustrated in the history of the asylum of this city. Here in 1409, with the most philanthropic and God-serving intentions, was opened the first asylum of Western Europe, organized by the efforts of Joffre Gilaberto, of the order of our Lady of Mercy. It was patronized by King Don Martin I. Dr. Desmaisons¹ admits the creation of this pioneer institution under the immediate influence of charitable Catholicism, but also, and very justly, points out the fact, that in Cairo and in Fez asylums for the insane had existed for one or more centuries, and as the members of the Order of Mercy had for their chief object the relief and ransom of Christian prisoners in Mussulman countries, they thus were likely to have known of these “infidel” charities. The building having been greatly damaged by fire, the in-

¹ *Op. cit.*, p. 41, *et seq.* This historical sketch is taken from Desmaisons. He did not see this institution, or any south of Barcelona.

stitution was reorganized and annexed to the general hospital of Valencia in 1512. This seems to have checked its course of development and progress. As will appear from the notes of my visit, it is now a blot upon the fair name of Spain, and a surviving specimen of mediæval cruelty in the midst of our modern human development. It ought to be reformed radically, and at once.

X. "El manicomio de Jesus" is situated on a flat piece of land only one kilometre south of the city, beyond the gate of San Vincente. Formerly the insane occupied a part of the Provincial Hospital within the town, but twenty-two years ago the patients were removed to the present building, an altered convent.

The physician-in-chief, Dr. Juan Ortiz Company, a very courteous gentleman, who speaks a few words of French, entered the asylum as "interne" twenty-two years ago, and has thus been in the new buildings since their completion. He admires Marcé's work on insanity, and has visited only the asylums at Barcelona.

The building is exceedingly plain; built in pavilion style, so combined as to form a double quadrangle, one for each sex. All the rooms, day-rooms and dormitories are dark and dreary, but perfectly clean. There are a few rooms for private patients. Airing-courts or "patios" much too small. No grounds. The parts reserved for epileptic, violent, and filthy patients were very bad. The kitchen, clothes-rooms etc., under the care of Sisters of Charity, were good and neat. Nothing of value could be learned of the forms of insanity. There were many epileptics, and Dr. Company estimated that among his men he had five per cent. or six per cent. of cases of general paralysis, and three per cent. (?) among the women. From this statement and others, I inferred that the diagnosis of paresis was not here understood. There seems to be no special treatment carried out.

There are five hundred and thirty (530) inmates, of whom some three hundred and thirty (330) are males.

Restraint is greatly abused here. Indeed, this asylum takes the lead in this matter, and is a century behind the age. Camisoles and ordinary muffs, wristlets etc., were employed, but there was something worse. This was an iron belt, made in two segments connected behind by a hinge, and closing in front by a nut and screw; the belt is two inches wide and one eighth inch thick. On either side, screwed by a rivet, is a single oval chain link, two inches long, supporting a manacle or bracelet of the same iron as the belt (a trifle less wide), opening with two hinges and closed also by a screw and nut. The bracelets give play for the arms (in semi-flexion, as the wrists are kept at waist) only on a radius of some three inches. And to cap the climax, these iron parts are not lined or protected in any way. The apparatus weighs from four to five pounds. Many of these were in use on male and female patients, and there were others hung up in a store-room. During our visit, a number of the patients came forward, half holding out their hands, begging piteously to be released. The good doctor smilingly replied, "Yes, by and by," or "Yes, to-morrow." The most astounding part of this barbarity was Doctor Company's satisfaction with the irons, and his assurance that they were "so secure." He showed me how they were managed, and took considerable trouble to procure me permission from the general authorities to take one away with me "as a model," which he supposed I would introduce to a grateful circle of alienists in America.

But the worst thing of all, a thing almost incredible at the present day, was the way in which the filthy demented patients were *herded* (and that is a mild word). In one long, narrow, dismal room, I found between thirty and forty women squatting nearly naked on a wooden platform, about

six by twenty-five feet, and raised one foot from the floor. On this platform was straw, and on this sat, or kneeled, or sprawled, or squatted, these women, with only a coarse shift, open in all directions, exposing to view wrinkled and dirty arms, backs, bosoms, etc. Some were howling, others moaning, some singing, many rocking to and fro. They were so crowded as almost to touch one another. On the other side of the same hall, a yard away perhaps, was another wooden, raised, sloping platform, extending the whole length of the room, covered with straw and corn husks. Upon this the wretches were to lie down side by side to pass the night. A bad-looking man had charge of this crowd, assisting a woman. No doubt sometimes extra muscular strength was required. The filthy male patients were treated in much the same manner, only they were allowed to go about their "patio," some with irons on. They, like the women, had almost no clothing, and like them they slept promiscuously on straw.

In these and other departments I noticed patients with bare extremities visibly suffering from the cold; it was a damp, chilly air, and I was glad of my winter underclothing, and a heavy autumn overcoat. Dr. Company said of these unfortunates, in a half apologetic way, that they were perfectly demented and unconscious. He added that restraint was always ordered by himself or his assistants.

I must confess that my blood boiled at these sights in a civilized city, in an asylum founded for humane purposes, and for so many years leading the world. Had I been able to speak Spanish or had Dr. Company understood French well, I should certainly have told him exactly what I thought. As it was, I could only swallow my painful indignation, and smile or bow.

I saw no hæmatoma auris.

In this, as in some other asylums in Spain, the patients

take their meals according to the old conventional way ; *i. e.*, narrow tables arranged near the walls, the patients sitting only on one side next the wall, thus leaving the whole interior of the room for the service. Not a bad plan as regards watching and serving, but a dismal one for the patients.

Intercurrent diseases quite rare ; only three patients in the infirmary.

There is no opportunity for farm-work, and only a few patients assist in the labors of the household. No trace of diversion or amusing occupation in-doors.

XI. MALAGA.—About three miles from the centre of the town, to the westward, across the rio guadal Medina, on quite a hill commanding a beautiful view of the sea-coast and city, is a small convent more than three hundred years old. Its single "patio" is surrounded by some dozen most elegant arabesque columns of white marble, and in its centre is a single-stone well-curb, deeply grooved by the friction of ropes, for centuries. Yet the place is wretched ; the rooms small, dismal, and out of repair. There is no ground whatever outside, and the patients can only exercise by walking in this "patio," or in a perfectly bare sort of yard adjoining the men's quarters. This asylum is within the jurisdiction of the hospital, which is a mile nearer the town—quite a fine modern structure, built after the plan of Lariboisière, in Paris, and well appointed. There is no resident physician (I think).

There are now fifty (50) inmates ; more than half males. This number is believed to include all the insane in Malaga (?)—(94,000 inhabitants).

Many are now "discharged cured," as I saw in the books shown me by the intendant. Some years ago, when, by a special contract, the insane of Malaga were sent to the asylum of San Baudilio, at Barcelona, very few were saved. The sea-voyage killed some.

There are neither means of occupation nor amusement for the patients.

Restraint moderately used. There is only one apparatus of iron in the house, which was on a "furious" patient at the time of my visit. He had on anklets of iron, joined by a chain, like a galley-slave. Usually, the camisole and soft-leather manacles are employed. The patients seemed depressed and untidy, though the building itself was clean.

XII. GRANADA.—An old convent, built by Ferdinand and Isabella, has long been used as a *manicomio*. It offers wretched accommodations; dismal rooms, small stony airing-courts, horrible cells for violent patients. However, the worst cases were not inhumanly treated as at Valencia.

Dr. Enrique Guerrero Ortega is the visiting physician; no resident. He sees the patients once a day, and gives clinical instruction to a few students. There are no regular lectures on insanity at the university.

There were one hundred and fifty-seven (157) patients in the place; ninety (90) males and fifty-seven (57) females. For the male patients there were two attendants and a "chief," or superior, in each of the two divisions. On the female side there were a number of Sisters of Charity; and they also had charge of the economy of the house.

Not much could be learned of the forms of insanity. There were many epileptics; and it was stated that there were only five or six (?) cases of general paralysis. Dr. Ortega considers alcoholism as the chief cause of paresis. Religious melancholia, with erotic excitement, frequent. He told me of a case of nymphomania, with dementia, cured by cold douches to the spine, and monobromide of camphor. It is said that there are some cretins in the region round about Granada, but I saw none.

Restraint, apart from isolation in cells, was not much used. There were no chairs, or iron manacles, etc.

Leather ones and camisoles were used. I saw no hæmatoma.

Dr. Ortega seemed fully aware of the shortcomings of his "asylum," and he criticised freely the parsimony of the provincial government with respect to the insane. He has all the insane of Granada, (67,300 inhabitants), and a few from Malaga.

Dr. Ortega, besides showing me every possible courtesy, gave me a copy of the recent official report on insanity (*vide infra*).

XIII. CÓRDOBA.—An old convent is appropriated to the use of male patients, while the females are housed in a part of the general (provincial) hospital near by. These insane are two in a room, or alone.

There is no resident physician. Dr. Luis Fuentes visits the two sections every day. Not finding the doctor at his house, I was obliged to go through the institutions with the Sisters in charge.

There are here thirty-two (32) male and twenty-seven (27) female patients; a total of fifty-nine (59), which is thought to include all the insane of the city, and province of Córdoba (population of the city alone is 42,000).

In a conversation with Dr. Fuentes, later in the day, he complained bitterly of the buildings and general management. He expressed the hope that before long a special asylum would be erected for two or three adjacent provinces. In spite of difficulties, he claimed some cures of simple forms of mania and melancholia. He could give me no definite data as to general paralysis; its diagnosis was evidently uncertain.

There were very few patients in restraint. One, a furious woman, was tied down in bed. The means of restraint are, however, barbarous; unlined iron wristlets and anklets are employed. Saw one room fitted up in ante-Pinel style:

near a bed made on the floor of a dismal cell was a chain riveted to the wall ; its other end was to be fastened to the iron anklets of a patient. This under good Sisters of Charity !

XIV. SEVILLA has no separate building for its insane. They are lodged in several altered wards of the Provincial Hospital (*h. de las cinco Llagas*) on the northern outskirts of the city—a huge building erected in part during the reign of San Ferdinand. There is more or less open country behind the hospital, but it has no “grounds.” The rooms are for one or two patients, poorly lighted, closed by a heavily bolted door with a small grated window. Some of these rooms are suggestive of cages for wild beasts. There is one large dormitory, which accommodates fifteen or twenty quiet patients. The courts or “patios” are small and cheerless.

The physician in charge of these wards, Dr. José M. Baca Santiago, visits the patients daily, in the same manner as other visiting physicians. Several internes look after the service at other times. Dr. Santiago expressed himself in strong terms as to the inadequacy of his wards, and the want of grounds. He has only seen one other asylum, viz., that of San Baudilio at Barcelona.

There were at the time of my visit seventy-seven (77) male and fifty-one (51) female patients ; a total of one hundred and twenty-eight (128), which the physician thought included all the evidently insane in the city and province of Sevilla (population of city 118,000).

The attendants seemed few in number but kind, especially the women.

Not much seems to be attempted here in the way of classification and study of cases. There were many cases of erotic melancholia and mania, often associated with religious ideas. There seemed to be little general paralysis ;

but it was impossible to estimate their number or to learn any thing about it because of loose notions as to its diagnosis. There were many epileptics with various mental symptoms. Some, much dreaded by the staff, were dangerous after their seizures.

Treatment seemed *nil*. Indeed, Dr. Santiago expressed his disbelief in medicinal treatment. He would use occupation, diversion, and moral treatment in general, if he had the means and space.

Restraint was moderate in amount and humanely done. No male was in restraint at the time of my visit; several women were isolated in cells, and two tied in chairs (the only ones seen in Spain). Restraint is usually by camisoles; but soft leather wristlets and anklets, as well as a broad strap for the body (for confinement to bed), are also employed. Restraint is applied by attendants, but the internes see how it is done. The gentlemen of the staff were much surprised when I mentioned the irons I had seen in other cities of Spain. No hæmatoma auris.

XV. CADIZ.—“Casa de los dementes.” This is an extension of the convent of Santa Catalina, in the chapel of which are the celebrated Murillos, including the altar-piece upon which the painter was at work when he fell and sustained fatal injuries. It is a wholly inadequate building, very dreary, with heavily barred cells, and is crowded. There are two visiting physicians: Dr. Henrique Rocafuel, and Dr. Carlos Borgia. The former gentleman very kindly showed me over the asylum, and also took me to the hospital and school of medicine. In the asylum there is also a resident physician.

There were one hundred and seventy-four (174) patients, about two thirds males. As usual there were many epileptics. (Cadiz has 71,500 inhabitants.) Nothing learned of general paralysis.

Restraint is rather too freely used; it is done by means of camisoles, leather wristlets, and I regret to add some iron manacles. No hæmatoma seen.

TOLEDO.—Hospital provincial de Inocentes, commonly called "El Nuncio." Although I was in Toledo, circumstances prevented me from visiting the asylum, and I was unable to make a second visit for the purpose. I owe the following details to the courtesy of the medical director, Dr. Fernando Sanchez y Mercander, who very kindly answered my letter of interrogatories, as follows:

1. The asylum was founded in 1493, by the Papal Nuncio, Cardinal Francisco Ortiz.

2. There are now in the asylum sixty-five (65) inmates, forty-two (42) males and twenty-three (23) females.

3. There are five (5) male attendants, two (2) female nurses, and besides six (6) Sisters of Charity.

4. General paralysis occurs in the proportion of 7 % of all admissions. Would estimate at 4 % its prevalence among females.

5. In Dr. Sanchez' opinion the most potent cause of general paralysis in Spain is excessive cerebral activity, more especially in the shape of intellectual exertions.

6. Restraint is employed in very few cases; many days pass without any one being restrained. Camisoles and belts are used, and the latter are so devised as to leave the arms partly free and the hands wholly so.

7. Nurses are permitted to apply the camisole at their discretion, but this is closely watched by the medical director.

8. Doubts if the English system of non-restraint would be practicable with the class of patients he has.

I may add that this asylum receives many patients from Madrid, which is less than three hours' distance by rail. It probably has, besides, nearly all the insane of Toledo, whose population is 17,600.

DOCUMENTS AND STATISTICS.

Apart from what is to be found in Spanish books and pamphlets relating to the history of hospitals and other charities, very little has been written about the insane.

Few travellers have visited Spanish asylums and have made public their impressions. It is singular that John Howard in his celebrated work on prisons and hospitals¹ in 1791, makes no mention of asylums in Spain: he simply refers to certain rooms allotted to the insane in the general hospitals of Madrid and Cadiz; and this after having made extended observations upon asylums of various countries.

Dr. Desmaisons, medical superintendent of the asylum of Castel D' Andorte, near Bordeaux, visited the hospitals and asylums in the north of Spain in 1858-9. His pamphlet of 177 pages was published in Paris in 1859, was written chiefly to answer a circular of the then Spanish Minister of the Interior, Don José de Posada Herrera, calling for plans and proposals for a "model" insane asylum to be erected near Madrid. Dr. Desmaisons writes in a diffuse sort of way, and his essay is mainly valuable for historical data. He only gives the number of patients in asylums he visited; there are no purely medical observations in the work; and as he did not see the worst Spanish asylums, he is unable to give any thing like a complete picture of the condition of the insane.

A French physician, Dr. Rey, has visited asylums in South America, Spain, and Portugal, and has placed his observations on record.²

Dr. Donald Frazer has also published some notes on Spanish asylums.³

¹ "An Account of the Principal Lazarettos in Europe." Cited by Dr. Desmaisons, p. 33.

² REY: Notes sur quelques asiles de l'Amérique du sud, de l'Espagne, et du Portugal. *Annales Médico-Psychol.*, Sept., 1876, p. 236.

³ On Spanish Asylums. *Journal of Mental Science*, 1879-80, vol. xxv.

These essays I have not had the opportunity of reading.

I only know of the following recent Spanish publications on the subject.

1. *Dr. Don Pedro Maria Rubio. Estadística de las dementes que existare in España é islas adjacentes, desde 1846 á 1847, formada por el excelentísimo, Señor Don Pedro Maria Rubio, con los datos oficiales que se le han facilitado por el Ministerio de la Gobernacion del Reino.* Madrid, 1848. The statistics of this report, together with various ministerial orders upon the subject, were published in the *Gaceta de Madrid*, for Oct. 7, 1848. I know its substance by citations made in the following :

2. *Memoria acerca del resultado que ofrece la estadística de los manicomios ; censo de poblacion acogida en ellos durante el año económico de 1879-80.* Madrid, 1880. This paper is signed by Señor Don Cástor Ybanez de Aldecoa, Director-General of Charities and Health.

[I am indebted to Dr. Ortega, of Granada, for a copy of this report].

3. *Dr. Rafael Rodriguez Mendez. Estadística de los Manicomios Españoles (año económico de 1879 á 1880).* Barcelona, 1880. This essay contains little that is original, or of strictly medical interest. It is a re-statement of the conclusions of the official report (No. 2), and a correction of some errors of calculation contained therein.

The only valuable part of these publications is the census of Dr. Rubio. It may have been quite incomplete, especially as it is stated that it was made up from "datos oficiales," and not after a special or personal canvass. However, he estimated the total number of insane in Spain, which had never been done before, and has not been attempted since. I quote from the citation—the official report of 1880.

Dr. Rubio found that the confined insane were distributed in the following institutions :

Four buildings having the special attributes of asylums.

Thirty-two general (provincial) hospitals.

Ten hospices, or houses of refuge.

Two infant asylums or foundling asylums.

Fourteen public jails.

Two penitentiaries (*casas galeras*).

One convent of monks.

One presidio (state prison where labor is enforced).

The number of insane he found to be :

	Men.	Women.	Total.
Insane in above institutions	912	714	1,626
“ kept in their families	3,148	2,077	5,225
“ whose sex is not stated			426
Total			7,277

[Dr. Desmaisons omits these patients unclassified as to sex, and thus makes Dr. Rubio estimate the number of insane at 6,851¹; an error of nearly 6 %].

The population of Spain is not mentioned in the official report, but the proportion of the insane was calculated by Dr. Rubio as one in every 1,667 inhabitants, or six per 1,000—certainly a very small proportion, especially if as many epileptics were included then as now.

In consequence of Dr. Rubio's report and suggestions, a number of laws were made and royal orders issued, looking to a serious and intelligent reform; but the frequent political revolutions which have since distracted the kingdom have naturally prevented their realization. The only results which followed were the withdrawal of insane from jails, etc., and their aggregation in provincial asylums and hospitals; the authorization of several private asylums; and

¹ *Op. cit.*, p. 36.

ERRATUM.

On page 407, in the eleventh line from the bottom, for “six” read “.6”

As remarked, the "census" is of very little use. However, by comparison with the census of 1848, certain interesting suppositions may be made. For example, in the enumeration we calculate that of the 7,277 in Spain, only $22\frac{1}{3}\%$ were in institutions. If now we assume the same proportions to have existed in 1880, as there were then 3,790 patients in institutions, the total number of insane in Spain may have been not far from 17,000 ($.223 : 100 :: 3,790 : 17,000$).

The population of Spain in June, 1880¹ being 16,638,938, the proportion would be very nearly one insane per one thousand inhabitants, which is still far below the proportions in "civilized countries."

Second, a table exhibiting a "classification" (sic) of the insane in various institutions.

Classes.	Men.	Women.	Total.
Tranquil patients	1,110	566	1,676
Semi-tranquil "	442	268	710
Violent "	218	170	388
Filthy "	238	203	441
Epileptic "	216	117	333
Unclassified "	142	100	242
	2,366	1,424	3,790

Third, a table purporting to give the number of "cures" in the five years ending in 1880.

	Men.	Women.	Total.
Cured after less than one year of treatment . .	654	336	990
" " more than one year and less than five .	297	160	457
" " " " five years and less than ten .	48	20	68
" " " " ten years	16	12	28
	1,015	528	1,543

What is remarkable in this showing, if its data are reliable, is the number of tardy cures; insanity being seldom recov-

¹ Dr. Mendez, *op. cit.*, p. 9.

ered from after five years. This is, however, useless for calculations, because the total admissions for the period of five years are not stated.

Fourth, a table giving the number of re-admissions in the same period.

	Men.	Women.	Total.
Re-admitted within one year	99	52	157
" " " and less than five	76	36	112
" after five years	28	15	43
	203	103	306

It would thus appear that only about 25 % were re-admitted; which, of course, would not, by any means, include all the relapses, as many such cases would be retained at home, etc.

CONCLUSIONS.

1. The number of insane persons in Spain. I have already (p. 409) made a calculation of the total number of insane that there may have been in 1880. In the asylums which I visited I found an increase of population, as shown in the following table :

INSTITUTIONS.	1880.			1883.
	Men.	Women.	Total.	Total.
Barcelona, Hospital Santa Cruz	177	136	313	300+
" San Baudilio	378	247	625	700—
" Corts de Sarria	69	37	106	190
Cádiz, Casa de dementes	96	73	169	174
Córdoba, Dept. of Provincial Hospital	27	21	48	59
Granada, Provincial Asylum.	119	47	166	147
Madrid, Government Asylum at Legañez	125	72	197	200
" Private Asylum at Carabanchel	24	16	40	60
Málaga, Dept. of Provincial Hospital	23	12	35	50
Sevilla, " " " "	45	28	73	128
Valencia, Provincial Asylum	294	165	459	530
Zaragoza, " " " "	244	154	398	430
[Toledo, " " reported by letter]	33	19	52	65
	1,654	1,027	2,681	3,033

Thus, in thirteen asylums which in 1880 contained 2,681 inmates I found 3,033; an increase of 13 per cent. in less than three years.

If we suppose that this represents an equal increase in the total number of insane in the kingdom, there would be (on the same basis as the former calculation) about 19,000 insane altogether. I do not believe this to be true, because it seems to me much more likely that the increased asylum population in both enumerations (1880 and 1883) was much more due to greater readiness on the part of families to send their insane to institutions for treatment, and to greater care in collecting the pauper insane, than to a positive increase. If one may hazard a guess in such an important matter I would place the total number of insane in Spain at the present time, at not more than 15,000. This would include cretins, idiots, and many simply weak-minded epileptics and paralytics.

2. The question of general paralysis, or paresis. In the absence of classification and statistics not much can be said of the prevalence and recent increase of this fearful disease. The percentage of cases was most variously estimated by different physicians.

Dr. Galceran, of Barcelona, 2 % to 4 %.

Dr. Sanchez, of Toledo, about 7 % to 4 % (in women!).

Dr. Pi y Molist, of Barcelona, 8 % to 10 %.

Dr. Esquerdo, Jr., of Madrid, 8 % to 10 %.

Dr. Mendez, of Barcelona, nearly 20 %.

Dr. Dolsa, of Barcelona, from 20 % to 25 %.

These conflicting estimates are not so very different from those we find in books, and hear specialists of other countries express.

What is more interesting, is the emphatic testimony of the experienced physicians above named, that general paralysis has greatly increased within fifteen years. As to

the causes of the affection and of its increase they expressed themselves as follows: Dr. Galceran blamed alcoholism; Drs. Dolsa and Sanchez think the cause is excessive intellectual exertion caused by the greater competition of modern life; Dr. Mendez considers alcoholism and syphilis to be the chief causes; Dr. Giné, while recognizing alcoholism as a predisposing cause, thinks that the anxiety and mental strain attending the increasingly severe struggle for existence is the chief cause.

3. The state of psychiatry in Spain. If we except perhaps half a dozen, the physicians I found in charge of the insane had but little knowledge of the subject, and were apparently unable to recognize general paralysis in its early stages, or in its peculiar forms. They were, almost without exception, unable to read the large and invaluable literature of insanity which is German or English; and beyond a vague and sceptical knowledge of "non-restraint" they knew nothing of the admirable management of the insane in countries beyond France. Several of these gentlemen read French and had a fair knowledge of its psychiatric literature up to ten years ago. Never had I so fully realized how men of industry and talent may be baffled in their work, and made to appear ill-trained by the want of *modern* linguistic knowledge. More especially is it true of this specialty in medicine, which since the days of Pinel has progressed almost equally by contributions in the three great modern tongues.

Many of the physicians I met had never been out of Spain, and had, consequently, never seen with their own eyes the practicability of non-restraint, the wonderful influence of occupation, etc., so well shown in English and Scotch Asylums.

In only a few universities is clinical instruction in mental disease given to medical students.

An association of alienists does not exist, so that these gentlemen have no opportunity of comparing means and results, and of exchanging ideas. Each one (with few exceptions) goes on alone in his routine work, ignorant of what his Spanish *confrères* are doing, and also of what is being accomplished and planned in other countries. Dr. Giné, who is a distinguished exception to the above criticisms, has invited physicians of asylums and others interested in psychiatry to hold a meeting or reunion at his asylum, Nueva Bethlen, in September next. Prizes are offered for essays on certain subjects, and a general discussion will doubtless take place. This may prove the beginning of a medico-psychological association, which would, indirectly, perhaps, prove of great and lasting benefit to the insane of Spain. I hope that this meeting will prove a success, and that it will be followed by results which shall reward its large-minded and generous originator.

4. The buildings. No very special fault is to be found with the best private asylums except this: in none of them are the violent and filthy patients treated with enough patience and humanity. They are in worse quarters than are the poorest patients in many public institutions; in dismal dark rooms, with small, perfectly cheerless airing-courts. In this matter, I think that improvement should soon be made, as it simply needs a few more attendants, and more vigilance on the part of the physicians. In reality, these unfortunates need more *active* care, and should have it, than the quiet, orderly patients. The general management of the private asylums is fairly good; especially to be praised is the proximity of gardens and pleasant "patios." In none of them, however, are the reunion rooms for male patients attractive and cheerful. It would be invidious, and is unnecessary, to compare the various private asylums, but I cannot help remarking that, consider-

ing the class of patients it is intended to receive, and the price asked for board, the asylum at Carabanchel is poorly equipped; it almost needs re-building and furnishing.

The provincial asylums are all bad; several unfit to receive any but criminals. Indeed, until the new institution at Zaragoza is opened, Spain cannot be said to have one proper provincial asylum.

The government asylum at Legañez is not as bad, but still it is far from what it should be.

The following are some of the most striking faults in these public institutions:—

a. Want of ground, of large gardens or farm-land. Consequently, it is almost impossible to occupy the inmates and to give them proper exercise.

b. Small size and utterly cheerless aspect of the airing-courts or yards ("patios"). Some of these are unfit for human use.

c. Absence of attractive (warmed, for Northern Spain) reunion rooms or parlors. Want of materials for amusing or instructing patients.

d. Want of sufficient extent of buildings to allow of classification and separation of patients. Many of the airing-courts now almost resemble Kaulbach's celebrated cartoon.

5. The management. I did not inquire into the questions of food and general economy, but simply observed the management of patients. It seemed to me to be kind, as a rule, but very imperfect. The physicians and patients were on friendly terms. I detected no signs of hatred of nurses on the patients' part, and the evidences of humane intentions were all around me. I was unfavorably impressed, however, by the prevalent notion that many patients were "utterly demented," unconscious of comforts or discomforts, and indifferent to their surroundings. This false idea led to much unintentional neglect and harshness.

Another idea incompatible with progress was the fear which the attendants (and apparently some of the physicians as well) had of violent patients. That such a patient was very furious, very dangerous, etc., was an exceedingly frequent apology for isolation in dungeon-like rooms, for tying down in bed during the day as well as night, and for the use of other means of restraint,—yet it might be difficult to convince the physicians that ceasing the use of restraint would diminish the “fury” wonderfully, as demonstrated by Pinel nearly one hundred years ago.

Nowhere was a systematic attempt made to employ patients. In some asylums a few are employed in the laundry, kitchen, etc. (at San Baudilio I was pleased to find quite a number of inmates gardening and farming). Of course in private asylums the feelings or notions of patients and their families must be consulted in this respect; but occupation for the insane does not necessarily mean manual labor. This is perhaps best, but there are many things which can be given to ladies and gentlemen to do in-doors, which will pass the time, and demand some concentration of the attention, or something objective and tangible. Even for pauper patients *valuable* productive labor is not what is needed; it is the labor itself, the physical exercise, the effect on attention, and the sedative action of fatigue which are sought by the alienist; so that labor which the administrative head of an asylum would smile at, is of as much importance, medically, as the steady, valuable work of some of the patients.

Amusements. In the private asylums there were reading- and billiard-rooms, but I saw no one using their contents. One reason was the unattractiveness of the rooms, but the most important cause was indifference on the part of physicians and attendants; it seemed no one's business to induce the patients to read, play games, and be sociable.

Lectures and theatricals were rarely given. The public asylums had no sort of amusement provided. The life of their inmates was one long monotonous, idle, cheerless existence—enough to cause dementia in a sane person.

6. Restraint. On re-writing my memoranda I am struck by the moderate use of mechanical restraint in Spain. Of course the provincial asylum of Valencia is an exception: its barbarous practice ought to be wiped out very soon. In many of the asylums there were very few patients restrained on the day of my visit, and that by the milder means, such as the camisole, or soft leather manacles or wristlets. Though I saw one wall-chain, and a number of iron manacles, I did not find one "crib." I must add that if I compare the impression made upon me by seeing the Spanish restraint (always excepting Valencia), and that produced by seeing a nearly naked, urine-stained woman struggling like a caged wild beast in a "crib" at the asylum at Danvers, Mass., in March, 1880, I am obliged to admit that the latter was the more painful, the more revolting sight of the two. And, if we remember the amount and nature of the restraint employed in asylums in the eastern part of our country prior to the recent agitation for asylum reform, we will not feel so very superior to our Spanish *confrères*. Dr. Giné's opinion that non-restraint is a noble ideal to be aimed at all the time, is a more advanced view than most of our asylum superintendents would have accepted five years ago. And the opposite opinion of Drs. Dolsa and Llorach, that non-restraint is absurd, and may be highly pernicious and criminal, would, I venture to assert, please more than one of our alienists.

It seems to me, from the generally benevolent management of the patients, and the naturally kind disposition of Spaniards, that non-restraint, in a general and practical way (if not in an absolute sense), will be the rule in Spanish asylums before a generation has passed.

In connection with this I might state that I saw only two (2) cases of hæmatoma auris, though I looked about sharply.

Is it proper for a stranger and a passing observer to offer any suggestions for reform? I may be allowed to do so, because I am not a hostile or prejudiced critic in this case.

In the much-lamented fact that Spain has no worthy public asylums, I see an opportunity for much more complete and rapid reform than has been possible in other civilized countries, burdened as they were (and are still) by costly "tolerable" establishments which it would have been waste to pull down, and yet which barred the way to progress. How much we in America suffer from this evil, as embodied in "palatial asylums," more especially! Every thing is to be done for the poor insane of Spain, and it may be well done from the start.

It seems to me that the following movements for reform might be begun simultaneously.

a. To make a special and actual census of the insane of the kingdom—separate lists to be made of idiots and cretins on the one hand, and of epileptics on the other. The mass of simply foolish, helpless paralytics (hemiplegics mostly), which are now included under the term "dementes," should be excluded. The enumeration should, of course, be made on one day, simultaneously, throughout Spain. Upon the data thus obtained, making allowance for the probable increase of insanity in the next thirty years, plans for asylums might be intelligently prepared.

b. New buildings will have to be erected, and this is a question involving many problems, and provoking many conflicting views. I would suggest the following general plan:—

1. To build in every principal centre of population a small thoroughly-appointed *hospital* for acute cases. It

might be designated in Spanish, "Hospital de Enagenados."¹ The meaning of the term acute cases should be further defined as including all simple forms of insanity; the psychoses, which are usually curable; and other cases in which the diagnosis is for a time uncertain, or in which it is hoped that treatment may cause remissions or intermissions. On no account should such an institution be crowded with cases of general paralysis, on the pretence that they are "acute cases." These hospitals would be relatively costly, in order that nothing in the way of foods, medicines, hygienic and moral treatment should be wanting. For is not a curable insane, who may continue a useful citizen for years afterward, as deserving of as expensive treatment as a man who breaks his leg, or contracts a pneumonia? It has always seemed to me that this view of the case was not correctly appreciated as a matter of political economy and of ethics. With the *curative* idea embodied in the name and practice of such institutions, the people of the city and surrounding country would soon be educated to sending their insane for early treatment; thus greatly increasing the chances of cure. As the salary of a *competent* resident physician, or medical superintendent, would be a considerable item of expense, it might be well, for small hospitals, either to have a visiting physician and a resident pupil, or to allow the medical superintendent to practice outside the hospital.

2. To erect, in a few accessible localities, large asylums, or "casas de dementes." Perhaps four or six would at present suffice for all Spain. The new institution at Zaragoza might be one of them, though it is much too expensively built.² The buildings should be very plain, of great extension, and (as now is the rule) of only two stories, one

¹ The present title of the Toledo asylum.

² Yet, unless altered in some of its parts, it will be unfit for a hospital for curable cases.

to be used solely at night. Each institution shall have a large farm with its stock, workshops of various kinds. The "patios" should be shaded and pleasant. These asylums might be made to receive from 500 to 2,000 of the chronic insane. As all the cases admitted would be incurable (upon any unexpected indications of improvement,¹ patients would receive special attention, or be sent to one of the hospitals), there would be no medical objection to such large numbers, while from an administrative point of view there would be the advantage of extreme economy. The population of these asylums would include cases of primary and secondary dementia, of systematized mania or monomania, of general paralysis (just as soon as the diagnosis became certain), and of epilepsy. After awhile the outdoor or shop labor of the inmates would prove remunerative, as it has done in many asylums,² and the patients might be paid a trifle to enable them to procure extra comforts.

3. To erect two special institutions for the training, education, and guardianship of idiots (not young demented) and cretins. One of these schools might be in the north, another in the south, of Spain.

4. One or two special asylums for insane criminals will be necessary in time, as it is manifestly unjust and unwise to mingle these lunatics, or quasi-lunatics, with others.

c. Young physicians, if possible such as have served as internes in general hospitals, should be sent on a tour of study in France, England, and Germany. These gentlemen would doubtless be made very welcome everywhere in their search after knowledge. They would return with a fair reading knowledge (at least) of the three languages,

¹ See table 3, p. 409.

² At the asylum of Rome all the cloths used for clothing (including uniforms of attendants), shoes, etc., are made in the asylum by patients who are paid a little and have bank accounts.

with a practical belief in the practicability of non-restraint, and with a fund of valuable ideas relative to the employment and amusement of patients, to the medico-legal relations of the insane, and to more purely medical and scientific points. If the States or provinces, or benevolent individuals, defrayed the expenses of these travelling scholarships, it would be only just to require the incumbents to bind themselves to serve the insane for a given number of years after their return.

Quite a small number of men thus educated, would exert an extraordinary influence on the progress of psychiatry in Spain. They would train attendants, educate other physicians, infuse life into the specialty, and in many ways confer great benefits upon the nation.

d. The physicians who are now in charge of asylums, should, in justice to their patients, and to themselves, enlarge their knowledge and experience. They, nearly as well as the young men, can learn to *read* the modern languages if they will; and many of them can visit asylums outside of Spain. They can also co-operate in a medico-psychological association.

e. Lastly, some supervision or inspection of the asylums becomes necessary. This might be done by means of medical inspectors reporting to some department of the government; or, perhaps better, by means of the English plan, of a Board of Commissioners in Lunacy, with critical and advisory privileges, but not executive powers.

LOCOMOTOR ATAXIA, TERMINATING AS GENERAL PARALYSIS OF THE INSANE.

By CHARLES K. MILLS, M.D.,

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AS the relation between locomotor ataxia and general paralysis of the insane has been a problem of interest to neurologists and alienists since the investigations of Westphal in 1863, the following case is, I believe, worthy of permanent record in the proceedings of the American Neurological Association.

P., at the time of first coming under observation was forty-seven years of age. He was a man of good constitution, noted for his strength and endurance, but for three years he had not been well, during most of which period he had been treated by different physicians for "rheumatism." He was addicted to venereal excesses, and used and occasionally abused alcohol. Many years before he had had a chancre, but had not subsequently had any of the ordinary evidences of secondary or tertiary syphilis. He had first suffered from darting or shooting pains in his feet and legs. Soon he experienced sensations of numbness and tingling in his feet, and later in the little and ring fingers of his left hand. For a short time he was troubled with double vision, and his sight had diminished a little in acuteness.

I will give briefly the results of an examination made during the first week he was under observation. No paralysis was made out. Galvanic and faradic irritability were well preserved. He could not walk well after dark. He swayed and tottered on trying

to stand with his heels together, or with his eyes shut, and he could barely manage to stagger a few steps with his eyes closed. He complained of the numbness and tingling in his feet and fingers, to which I have already referred ; and the paroxysms of sharp, sudden pains in his limbs had become more frequent. He was awkward with his hands in dressing. Occasionally a disagreeable vaporous sensation would begin in his fingers, and creep up his arms, and thence spread over his body. A peculiar sense of constriction or drawing in the lower part of the abdomen had annoyed him for several months. Sexual desire had diminished. Within four weeks he had lost seventeen pounds in weight. He suffered from attacks of sleeplessness and from mental anxiety in regard to his physical condition ; but he had no symptoms of aberration of mind. He had no delusions ; and he was fully able to attend to his business, which required a large amount of physical and mental exertion.

At first he was given potassium iodide, but under its use he made no improvement. He was next placed upon a systematic course of treatment with silver nitrate, galvanization of the spine, and faradization of the extremities. A mixture of either strychnia and quinia sulphate, or of the Prussian oil of phosphorus, was occasionally substituted for the silver nitrate. A strong galvanic current was applied with broad rheophores over the entire length of the spinal column twice or three times a week, and faradization of the feet and limbs both with the metallic brush and with sponge electrodes was also employed. The improvement made apparently under this treatment perseveringly continued was remarkable. He gained in weight. The paroxysms of lancinating pains diminished very much in frequency and severity. The sense of constriction about the waist and abdomen disappeared. He ceased to have the sensations of numbness and formication. He became able to walk without trouble in the dark, and even to stand and walk with his eyes shut. After about seven months of treatment, he discontinued the use of electricity ; occasionally, however, taking medicine.

After remaining better for a few months, however, he again relapsed ; and now, in spite of all treatment, including medicines, electricity, rest, and discontinuance of business for a time, he got steadily worse. Occasionally, however, he would temporarily improve. The anæsthesia of his feet and hands deepened ; the staggering gait returned and grew worse ; every two or three weeks he would have frightful attacks of lancinating pains.

Decided mental symptoms first began to make their appearance two years after first coming under treatment. He spent his money very freely upon others as well as upon himself. His friends observed that his ideas were becoming queer and lofty ; but the delirium of grandeur did not develop thoroughly until nearly a year later, when he began to talk and act in the most preposterous manner. About the same time a peculiar stagger in his speech, a slight twisting of the mouth to one side, and some tremor of the tongue and lips, became noticeable when he talked. On several occasions at this stage he had attacks of hæmoptysis, and he was troubled with a cough, and now and then with night-sweats. He lost weight steadily.

He made bargains for the purchase of valuable houses, in several instances getting himself into difficulties with persons who at first did not know that he was irresponsible. On one occasion he assembled a number of his boon-companions at a tavern, and gave them an expensive banquet in honor of his fiftieth birthday, which, he said, on account of the good time which he had had in this world, had come for him a year earlier than for ordinary mortals.

Nearly three years after the notes first made by me as to his spinal symptoms, and almost six years after the development of ataxic pains, he was sent to the Insane Department of the Pennsylvania Hospital, where I occasionally visited him.

His delusions became of the wildest character. He became irritable and hard to manage. Anæsthesia, tremor of tongue, etc., increased. On two occasions he had slight apoplectiform attacks, once accompanied by slight spasms. Later he was removed to the State Hospital for the Insane at Danville, where he remained until his death. Through the kindness of Dr. S. S. Schultz, Superintendent of the Hospital, I received some important particulars in regard to his condition about six weeks before his death. His general mental condition was very much enfeebled. He did not seem to understand where he was, or to recognize strangers from those constantly about him. He also did not seem to realize the difference between filth and cleanliness, or between different kinds of food. When given a peach to eat, he said: "Very good cook." His speech was muffled and indistinct, syllables and words often running into each other so as to be unintelligible. While apparently waiting for a word or an idea, his lips were unsteady, would quiver and be drawn together in points. Even when ready to talk

he would seemingly have to make several efforts before he could speak. His movements were weak, hesitating, and awkward. He usually remained in bed, although he was able to get up. His bowels were not paralyzed. A needle could be plunged deeply anywhere into his body or limbs without causing him any apparent discomfort. Of events which occurred previous to his sickness he appeared to retain some correct ideas, but recent occurrences left no impression. His wife visited him and stayed with him several hours, but an hour after her departure he had lost all memory of the visit.

He died exhausted, five years and four months after my first examination of his condition, and about eight years after his first so-called "rheumatic" pains.

His body was sent to Philadelphia and I obtained permission to examine the brain and spinal cord.

An autopsy was held forty-six hours after death, Drs. Eskridge and Massey giving valuable assistance. External examination showed two slight abrasions on the top of the head. The left foot, which looked swollen and enlarged as compared with the right, measured over the instep $9\frac{3}{4}$ inches; the right, $8\frac{1}{2}$ inches.

The skull-cap was found to be about normal in thickness. No adhesions of the dura mater to the skull were present. The dura was, however, adherent to the pia mater for a distance of three inches along the edge of the longitudinal fissure, about the middle of the right hemisphere, and for about one inch along the left hemisphere. A bony formation, an inch in length, and one third of an inch in width and thickness, was found in the falx opposite the middle of the first frontal convolution. A similar formation, one third of an inch long, was discovered opposite the end of the fissure of Rolando.

On the right side, the pia mater of the upper and lateral surfaces presented a deeply congested and opaque appearance over the following convolutions: a small portion of the posterior end of the first frontal, the posterior thirds of the

second and third frontal, the entire ascending frontal and ascending parietal to within an inch of the longitudinal fissure, the lower half of the superior parietal, the inferior parietal, and the first and second temporal. Over the hemisphere, in front, behind, and above this area the pia mater presented a little bluish opacity, and was hyperæmic in points. The appearances over the left hemisphere were exactly similar, except that the area of deep redness and opacity did not involve as large a surface. The convolutions covered by it were as follows: the ascending frontal, ascending parietal, inferior parietal, and upper temporal. A considerable amount of fluid escaped, apparently chiefly from the frontal and occipital regions. The convolutions of the frontal and occipital lobes were flattened, the appearance being most marked over the left frontal region. The entire left hemisphere was a little smaller than the right. The pia mater over the superior vermiform process of the cerebellum was also deeply congested and adherent. The pia mater was adherent at scattered points over both cerebrum and cerebellum. Decortication was marked. Some hyperæmia of the pia mater of both temporo-sphenoidal lobes was noted; it was more marked on the right than on the left side. The membrane across the right Sylvian fissure presented a dark, clotted appearance; a similar, but less marked condition was present on the left side. The frontal convolutions on the right side, basal surface, were more flattened out than is usual. The cerebellum was about normal in size. The medulla oblongata was small and firm.

The cornua of the ventricles were dilated; the posterior horns in particular were much enlarged.

The only notes made as to the gross appearances presented by the spinal cord and its membranes were that the pia mater was thickened, and that the cord presented an irregularly shrunken look.

The spinal cord and membranes, and numerous specimens from the brain, were examined microscopically by Dr. Carl Seiler, H. Formad, and myself. Sections from the membranes, complete transverse sections of the cord at different heights, and large sections from the medulla oblongata, pons, cerebellum, crura cerebri, optic thalami, and convolutions were prepared and examined.

The dura mater of the spinal cord in the lumbar region was found to be slightly thickened. Evidences of leptomeningitis were present; there were some adhesions between leaflets of the pia mater.

The lower lumbar region showed the connective tissue between some of the nerve-fibres much increased. The cortical layer of the posterior columns was sclerosed to the extent of about one fourth the thickness of the substance of these columns. The sclerosis in the columns of Goll and posterior root-zones was of nearly the same extent.

The walls of the vessels appeared thickened throughout the posterior columns. The sclerosis was most marked on the right side. The vessels and perivascular spaces to the right of the central spinal canal were enormously dilated. The central canal was obliterated. A small hemorrhagic infarct was observed in the right lateral column, near the posterior horn and near the periphery. The upper lumbar region showed the same changes, the sclerosis, however, being not quite so marked. The central canal and posterior fissure were obliterated. The dorsal and lower cervical regions also showed the same condition, but in decreasing intensity. The pia mater of the dorsal and lower cervical regions was thickened, and the central canal and posterior fissure obliterated.

Sclerosis in the upper cervical cord was less than in the lower portion, and was more marked in the columns of Goll. The vessels in the deep portions of the columns of Goll, and

in the posterior radical columns, were seen to be much sclerosed. Here for the first time the posterior median fissure was not obliterated.

The ganglion cells and periganglionic spaces showed a granular and atrophied condition.

Corpora amylacea were found in the lateral columns throughout the cord.

The medulla oblongata showed a great number of corpora amylacea in the lateral tracts. The restiform body of one side was much sclerosed, and but slightly so on the other side. Ganglionic cells on each side were highly granular and pigmented. Some of the centres also contained corpora amylacea. In some of the larger vessels were accumulations of white blood corpuscles. The perivascular lymph-spaces appeared widely distended.

The pons Varolii presented corpora amylacea in various places. The vessels contained white blood cells, and their walls were infiltrated with cellular elements.

The left crus cerebri exhibited the ganglionic cells extremely granular and pigmented. The vessels were sclerosed, and their walls infiltrated with cells, and some with pigment. Sclerosis was present along the course of the vessels and corpora amylacea in the white substance. In the right cerebral crus the same conditions were present as in the left side. The corpora amylacea were in greater number.

The left optic thalamus showed the walls of the vessels extremely infiltrated with cellular elements, even in capillary plexuses, and the nuclei in the neuroglia much increased along the walls of the vessels. In the right optic thalamus the changes were the same, but not as well marked.

A section of the convolutions across the fissure of Rolando showed the same state of the vessels as in the optic thalami, but less marked, and also a few corpora amylacea in differ-

ent parts. The pia mater was thickened and its vessels dilated in several portions examined. The corresponding cortical motor region of the right side gave similar appearances, with corpora amylacea more numerous.

The right and left præfrontal lobes showed an increase of nuclei in the fibres of the white substance, the walls of the vessels infiltrated with cellular elements, and numerous corpora amylacea.

Sections from the superior vermiform process of the cerebellum showed both the vessels and the cerebellar substance in a state of sclerosis. Corpora amylacea were also present. The right and the left cerebellar hemispheres presented similar conditions of the vessels and of the brain substance.

Summarizing the results of the examinations, I find that the posterior columns of the spinal cord showed marked sclerosis throughout their whole extent, and that leptomenigitis was present everywhere. The sclerosis was most marked in the lumbar region, decreasing in intensity as the cord was ascended; but was well marked throughout, both in the columns of Goll and in the posterior root-zones. The medulla oblongata, on one side, was much sclerosed, and slightly so on the other side. Sclerosis was also present in the pons, crura, optic thalami, and convolutions examined, and in the cerebellum.

The pathological appearances shown by the microscope corresponded closely to those mentioned by Hitzig, after Westphal (*Ziemssen's Cyclopædia*, vol. xii, p. 853), as occurring in the spinal cord, in dementia paralytica. The first of the two groups presents, clinically and anatomically, the symptoms of tabes dorsalis, or gray degeneration of the posterior columns. On making a transverse section of the hardened cord, the posterior columns show few or no sections of nerve-fibres, and their place is taken by a con-

nective-tissue substance. In the cervical region, Goll's cuneiform columns are especially affected; in the dorsal and lumbar regions, however, the entire area of the posterior columns is involved. In fresh preparations, numerous granular fat-cells and corpora amylacea are found. This change can be followed upward only to the beginning of the fourth ventricle.

In this case the spinal symptoms were the first to appear. Three years before coming under my care, he began to suffer with the lancinating pains of posterior sclerosis. Although, when first seen by me, and until he improved under treatment, he suffered at times from mental anxiety and sleeplessness, apparently the result of the pains and other distressing symptoms of the ataxia, no typical mental symptoms appeared until more than two years after coming under my care, and more than five years after the appearance of the first symptoms of spinal trouble.

According to Westphal, with whom Hammond agrees, no direct relation exists between the morbid process in the cord, in posterior spinal sclerosis, and that in the brain, in general paralysis of the insane. According to these authorities, neither disease is secondary to the other. They simply co-exist as the expression of an excessive proclivity to disease of the nervous system, just as any other two diseases may be present,—one in the brain and the other in the cord, without there being any direct interdependence between them. Locomotor ataxia is by no means uncommon in patients affected with the other forms of insanity. (Hammond: "Treatise on Diseases of the Nervous System," sixth edition, p. 511.)

Hamilton (*New York Medical Record*, July 29, 1876) discusses the relations of these two affections. Leidesdorf has related one case in which general paralysis was preceded by spinal symptoms. Maudsley speaks of other cases.

Calmiel says that in many cases the changes proceed from the cord upward, and Baillarger endorses his views. Charcot has proved very conclusively that disseminated sclerosis can exhibit all the symptoms of general paralysis of the insane. Obersteiner considers that mental symptoms are found in the greater proportion of cases of locomotor ataxia.

He is convinced that the symptoms of general paralysis indicate a progression of the sclerosis upward. He considers the lesions to be identical, and that it is only the seat of the change which has any thing to do with the symptoms expressed. He has also found in general paralytics who have died, a sclerosis of the cord. Tigges considers general paralysis to be a complication. M. Rey has observed nine cases of insanity associated with locomotor ataxia. In three of these the spinal sclerosis preceded the cerebral trouble, and in one the induration had extended from the posterior to the lateral column.

Hamilton details two cases, one from personal observation, and one related by Obersteiner. Obersteiner's case presents many points of similarity to the one which I have just reported.

Plaxton (*Journal of Medical Science*, July, 1878) gives an account of two cases of locomotor ataxia, with mental symptoms simulating those of general paralysis, with a pathological report by W. Bevan Lewis.

In the first case the symptoms of locomotor ataxia began eleven years before death; the mental symptoms only two years and three months before death. "He developed ideas of grandeur, wealth, and power, transcending even the power of the genius of the lamp of Aladdin to fulfil." Microscopic examination showed marked sclerosis of the posterior columns. In the lumbar region the pathological process was most advanced. The columns of Goll formed here a shrunken, fibrous tract crowded with nuclei and amy-

loid bodies. The substantia gelatinosa and posterior root-fibres exhibited intense sclerosis. The cells of the posterior horns were few in number, small, pigmented, and atrophied. In the dorsal and cervical regions the changes were the same, but less in degree than those in the lumbar cord. The antero-lateral regions of the cord were, comparatively speaking, normal. Post-mortem examination of the brain showed some wasting of the convolutions of the vertex in the frontal and parietal regions. The pia mater over these parts was slightly thickened, but presented no trace of adhesion to the subjacent cortex. The brain, as a whole, was firmer than normal. Neither the cortex nor white matter presented any abnormality to the unaided vision, but the arterioles everywhere appeared unduly coarse and prominent. The medulla oblongata was found to be very decidedly firmer than normal. Microscopic examination of the cerebrum detected nothing abnormal in the cortex or medulla of the brain.

In the second case, progressive locomotor ataxia had lasted between five and six years, insanity five months. Delirium of grandeur was here also the leading mental symptom. His fancy ran riot in all possible directions, and his belief kept pace with his fancy. On post-mortem examination the convolutions of the vertex, especially in the frontal and parietal regions, presented great wasting and atrophy. The membranes covering this wasted region were much thickened, but quite free from adhesions. The brain was extremely pale, and its consistence diminished. Serous fluid to the amount of seven ounces (compensatory effusion) escaped. Microscopic examination of the cerebrum, by Bevan Lewis, showed colloid degeneration of the white matter of the cerebrum, and of the pons and medulla oblongata. No morbid change was discovered in any portion of the cortex; and, stranger still, careful examination of the cord in the cervical, dorsal, and lumbar regions,

showed no morbid change in its nervous, connective, or vascular elements.

Dr. W. Julius Mickle (*Lancet*, May 28, 1881) reports a case of general paralysis of the insane consecutive to locomotor ataxia, very similar in most of its features to the case reported in this paper. The locomotor ataxia was of about five years' duration; the general paralysis of nearly four years' duration. The microscopical appearances in the cord were almost identical with those seen in my case.

NOTE ON THE USE OF HYDROBROMIC ACID IN NERVOUS AFFECTIONS.*

BY C. L. DANA, M.D.

NEW YORK.

HYDROBROMIC acid has been before the profession for several years, it having been first employed by Dr. Dewitt C. Wade,¹ in 1875. Since then Dr. Milner Fothergill has recommended it. Dr. E. T. Reichert² has studied its effects upon the nervous system of animals and found it to depress the reflex functions of the spinal cord like the bromides. He did not study its effects upon the brain. Descriptions of the drug are not to be found, however, in most of the therapeutical text-books, and Phillips,³ as late as 1882, states that its real value has yet to be determined.

It has been used by the profession chiefly with quinine, under the belief that it prevents or lessens cinchonism. The only extended record of clinical observations regarding it that I can find is one by Massini published two years ago.⁴ He used it in thirty-one cases of various kinds. In a few cases of neuralgia, migraine, hypochondria, melancholia, it

* Read at the annual meeting of the American Neurological Association, June 22, 1883.

¹ *Peninsular Medical Journal*, Feb., 1875; *Boston Med. and Surg. Journal*, civ, p. 505.

² "U. S. Dispensatory," 15th ed., p. 64.

³ "Materia Medica and Therapeutics," vol. i, p. 120.

⁴ *Correspondenzbl. f. Schweiz. Art.*, Sept., 1881.

did no good. In twenty-two other cases of insomnia, irritable heart, cerebral congestion, headache, and spermatorrhœa it acted successfully. He did not use it in epilepsy.

I was led to experiment with hydrobromic acid in the hopes that it would have the beneficial effects of the alkaline bromides in epilepsy without causing depression and scurvy.

Pure hydrobromic acid (H Br, atomic weight, 80.8) contains in one hundred parts, by weight, 99 parts of bromine. One drachm of the pure acid is equal in bromine amount to about 90 grains of bromide of potassium, 175 grains of bromide of sodium, 66 grains of bromide of lithium, 73 grains of bromide of calcium, 71 grains of bromide of ammonium.¹

Hydrobromic acid or hydrogen bromide, therefore, contains more bromine proportionately than any other of the bromine compounds, and is united with an innocuous metal.

The average dose of the pure acid, assuming that the medicinal and chemical equivalents are the same, would be

¹ One drachm potassium bromide, contains	.	.	66 % bromine
" " sodium "	"	"	78 % "
" " lithium "	"	"	92 % "
" " hydrogen "	"	" (hydrobromic acid)	99 % "

The exact ratios can be calculated from the following table :

The Bromides.	Atomic Weight.	Atomic Weight of the Constituents.	Proportion of bromine
1 H Br	80.8	1 : 79.8	79.8
2 K Br ₈₀	115.8	39 : 79.8	80.8
3 Na Br	102.5	23 : 79.8	80.8
4 Li Br	56.3	7 : 79.8	80.8
5 Ca Br ₂	199.6	40 : 159.6	159.6
6 Cd Br ₂	271.6	112 : 159.6	159.6
7 Cu ₂ Br ₂	652.5	184 : 498.5	498.5
8 C ₂ H ₅ Br (Bromide of Ethyl)	105.8	24.5 : 79.8	79.8
9 Fe Br ₂	215.6	56 : 159.6	159.6
10 Hg ₂ Br ₂	559.6	400 : 159.6	159.6
11 C ₁₀ H ₁₆ Br O	230.6	79.6 : 151	151
12 Zn Br ₂	224.5	64.9 : 159.6	159.6
13 N H ₄ Br	97.8	18 : 79.8	79.8
14 C Br ₄	331.2	12 : 319.2	319.2
15 I Br	206.8	127 : 79.8	79.8

Monobromated Camphor

from ten to twenty drops. The officinal dilute acid is a ten-per-cent. solution, of which the dose would be 3 i to 3 iiss, well diluted.

I have now used hydrobromic acid in the treatment of various nervous affections for nearly two years. At the Northeastern Dispensary the druggist informs me that the amount prescribed for the class of nervous diseases exceeds three pounds a month. I have used it in over fifty cases, of which I have notes, besides others.

These cases were :

Epilepsy	6	tric, cerebral)	12
Alcoholism	2	Chorea	2
Headache, congestive	1	Insomnia	3
Headache (malarial)	4	Hysteria	3
Spermatorrhœa	2	Post-hemiplegic cere-	
Vertigo	6	bral (vascular) dis-	
General nerve-weakness		turbances	3
(nervousness)	6	Senile melancholia	1
Various forms of neuras-		Paralysis agitans	1
thenia (sexual, gas-			
Total			52

Hydrobromic acid in epilepsy.—When I first began to use hydrobromic acid in epilepsy, I was greatly encouraged by the result. The first of my six cases was a most obstinate one, a young man of twenty, who had suffered from grand mal and petit mal since his ninth year. He had run the gauntlet of several nerve-clinics in the city, and had been assaulted by all the anti-epileptic remedies in the pharmacopœia. He was having attacks every day, sometimes several in the day. Under the acid he often went for one, two, or three weeks without any fit. He was given the acid for six or seven months, in doses of 3 iv–3 v a day. After a time it began to lose its hold, and I added oxide of zinc. Finally the patient passed out of my care. He subsequently died in a convulsion.

In three succeeding cases the disease was much milder, and the attacks came on only once or twice a month.

In these cases the acid stopped the fits for a time at least, and as long as they were under my care. I subsequently lost sight of them.

In two remaining cases there was no great benefit. Both of these patients suffered from both the *grand mal* and *petit mal*, and were old and obstinate cases. One of them when put upon very large doses of bromide of sodium did better than upon the acid. In the other the acid seemed to do nearly as well as the bromide. The convulsive attacks were nearly stopped, but the *petit mal* could not be controlled.

I think that in epilepsy hydrobromic acid can not be used as a substitute for the bromides, except in the more controllable cases, when one wishes to keep up a mild sedative effect for a long time. Yet, it undoubtedly has an influence over the disease, and I do not yet feel certain that if given in equivalently large doses it might not be as efficient as the alkaline salts.

In chorea.—Hydrobromic acid can be used advantageously as a medium for the use of arsenic or nux vomica, when it is desired to give a sedative. Doubtless an ordinary solution of arsenious acid in hydrobromic acid is quite as good as the much-vaunted formulæ of Clemens and Gilliford.

In alcoholism.—The acid failed in two cases of acute alcoholism, the patients being on the verge of delirium tremens. Bromides and chloral subsequently gave relief.

With quinine to prevent cinchonism.—Hydrobromic acid is a good solvent for quinine, but it does not, according to my experience, prevent cinchonism, as has been asserted—certainly not in the small doses usually prescribed.

The *best results* which I have obtained from hydrobromic acid were in conditions of nervous irritability, congestive headaches, post-hemiplegic circulatory disturbances, irritable

heart, stomachal vertigo, where a general nervous and vascular sedative is indicated.

In most cases of insomnia it also acts well. I would say positively that I can give the acid with just as much confidence that it will produce nervous sedation as when the alkaline bromides are prescribed.

Its advantages are that in moderate doses it is not disagreeable; it does not constipate, or irritate the stomach; it may be given when an acid is indicated for the stomach. It can be conveniently prescribed with iron and tonics. Finally, in the largest doses, long continued, I have never seen any sign of bromism or any disagreeable constitutional effect, other than some drowsiness.

A disadvantage is that when very large doses are to be administered, the amount of acid to be taken is disagreeable.

As to the dose of hydrobromic acid, great misconception prevails. It is, I believe, customary to prescribe m. xx to 3 i of the three-per-cent. or of the ten-per-cent. solution, usually the former. This is generally much too small in amount.

Theoretically, in order to get a sedative action 3 iss to 3 iiss of the ten-per-cent. solution must be prescribed. Practically, I find that very satisfactory sedative effects can be gotten from drachm doses of the officinal dilute solution. A very palatable prescription is as follows:

℞	Acid. hydrobromic. dil. (10 %),	℥ ij
	Tr. nucis vomicæ,	m. xlv.
	Aquæ cinnamomi, q. s. ad	℥ iv

Sig. 3 ii, 3 to 6 times a day, in considerable water.

The iodides and alkaline bromides can not be safely prescribed in solutions of strychnia. The ten-per-cent. solution of hydrobromic acid, however, dissolves strychnia, though not readily. I have been able to dissolve gr. ss of strychnia sulphate in 3 v of dilute hydrobromic acid.

Occasionally a patient complains very much about the acidity.

In conclusion, then, in all the milder affections for which the bromides are used, the acid can be substituted. It is, in moderate doses, agreeable, non-irritating, and will cause no eruption or other symptom of bromism. It has appeared to me to be especially efficient in producing vascular and nervous sedation in the post- and præ-hemiplegic conditions. Unless given in very large doses, it takes several days to get its best sedative effect.

CASES OF LOCOMOTOR ATAXIA.*

By S. G. WEBBER, M.D.,

BOSTON.

THE following cases are of interest on account of unusual symptoms, or on account of the marked remissions in their course. The clinical history is not so complete in one or two as could be desired.

CASE I.—The first case is one of severe gastric crises without other prominent symptoms. I saw the patient, a man about fifty years old, in the summer of 1881. His account of himself was, that he had had gastric derangement at intervals for twenty years or so. The disturbance showed itself in severe attacks of flatulence attended with such pain that several times he had been laid up and obliged to keep his bed. The distress was chiefly in the right side ; the attacks began suddenly without any apparent cause. There was no tenderness anywhere. Sometimes he had nausea, rarely vomiting. He had had no pain in his feet or legs, and was conscious of no numbness. Patellar tendon reflex was entirely lost.

This patient was extremely nervous, and I could not give him quite as thorough an examination as I should have liked. I made no attempt to examine his eyes. The case is interesting from the extreme violence of the gastric symptoms, to which no words can do justice. There was, however, very little vomiting.

The next case is of interest from the restriction of respira-

* Read before the American Neurological Association, 1883.

tion. I have seen this in one other patient. The attacks recalled laryngeal spasm, but there was no cough. The sensation was probably an unusual form of the girdle sensation.

CASE 2.—Mr. E. L. G. was seen July 5, 1882. He said he had been ailing fifteen years with trouble in his spine. At first he had pain in his chest one morning, when he sat leaning over. On trying to rise, he could not rise upright; he felt a contraction in his chest which “shut his wind off.” When he tried to work, he got this contraction in his chest. Sometimes, instead, he had a stiff neck or headache. For several years he had had a pain in his legs, most in left leg, from knee to ankle—a tired, nervous pain just inside and behind tibia. The pain in right leg was less. There was no numbness that he was aware of. Sometimes, during the aching, the leg would twitch. If he walked much his legs gave out; he could not lift his toes, and he had to put his foot down all at once.

There was some hyperæsthesia of both legs below the knees. Patellar-tendon reflex was absent. There was no inco-ordination.

Diabetes associated with occipital pain is the combination of symptoms which attract attention in the next case.

CASE 3.—Mr. P., æt. fifty, was seen in consultation with Dr. Hildreth. He had lived a rather rough life, but had never drunk spirits, and had never had syphilis. He had had sick headaches for many years. About seven years previous he had had severe neuralgia in the occipital and trifacial nerves. Some of these attacks were very severe. A short time after these attacks of pain sugar was discovered in the urine by Dr. Hildreth, the sp. gr. ranging from 1035 to 1050. The amount was never excessive. About a year before I saw him he began to have pain in his legs; this pain was lancinating, momentary, and severe. After several months there was hyperæsthesia of the legs, which later became excessive, and with the pain tortured him much. There was no girdle sensation. When seen there was found to be less acute sensibility in the left foot and right leg than in their mates. Tendon reflex was gone.

There appeared a burning sensation in the legs, which the patient spoke of as frying; this gave him much distress.

Nitrate of silver was used for a time; morphia and later codeia

controlled pain and diminished the amount of sugar. Actual cautery to back was of service, seeming to diminish the frying in the legs. At length the sugar disappeared from the urine; the pains became less severe, though they did not entirely cease. When last examined the tendon reflex was still absent.

Deafness has been seen only a few times in locomotor ataxia. Erb reports a case in *Ziemssen's Cyclopaedia*; other cases have been reported. Sometimes the deafness is unilateral, sometimes it is only partial. The following case was a very striking one, and the deafness was such that the voice could not be heard. Probably the lesion is similar to that found in case of atrophy of the optic nerve.

CASE 4.—Mr. J., æt. fifty-three, was sent to me Oct. 26, 1882, by Dr. C. J. Blake, with a note, saying that the condition of the ears would not account for his deafness.

About eight years ago he sat with his back against a brick wall in a cold building. After that he had rheumatism, most in the knees; then it would skip about in feet, ankles, back, neck, and head. The pains would seize him in his feet and knees, and he wanted to move his feet about constantly; it would last only a short time; would then go, to reappear elsewhere. This pain had been increasing in severity, and in the frequency of attacks.

He had had dizziness and headaches, but these did not occur together. About a year ago he was on the street, had a dizzy spell, and thought he should fall, but did not; after the attack he found he was partially deaf in both ears, the right worse; this deafness gradually increased until he could not hear the voice. After the deafness he had less dizziness, and in some respects has felt better. He has tinnitus occasionally, not constantly.

He is weak in his legs, and has not much sensation in the left knee. The left leg and foot are a little less sensitive than the right, and the plantar reflex is less on the left. Tendon reflex is entirely gone. He says he is afraid at times that he staggers, but does not know whether he does or not. The hands are less sensitive than natural; he cannot tell a dull from a sharp point in either hand.

His eyes move naturally, pupils react to light, the right is the larger; face and tongue move naturally.

In the remaining cases either the patellar reflex was not lost, or returned, or at least a temporary remission was obtained.

CASE 5.—A. C. G., æt. thirty-seven years, seen Aug. 2, 1881. Does not stand much on his feet. Had syphilis seven years ago. Has not been exposed to cold or wet. Seventeen to eighteen years ago he had cold feet and pain through the hips on both sides. This pain did not shoot down his legs, and was different from the pain he had lately felt. About twelve years ago he had trouble with his eyes from proof-reading, none since. Six to seven years ago he had pain in his right ear, and has had more or less discharge from that ear. The pain was very severe. Dr. Blake said there was inflammation. A short time after this he had pain in the back of his head, which was severe till two years ago. During the last three years he has had severe shooting-pains in his legs, at times very severe. At first it was in the back part of the thigh. Two years ago it affected the instep; now it is more general, not more severe. It is increased by bad weather, or by the sudden clearing off of a storm. The pain does not interfere with his walking, and he is not conscious of loss of power. Without cause, so far as he knows, he sometimes cannot walk straight. He has no sense of dizziness.

Two or three years ago his hands would at times be numb, with a slight pricking sensation. Three or four weeks ago he felt this again; and his handwriting then looked unnatural. There is no numbness in the feet, but during the pain his legs are extremely sensitive.

There was no unsteadiness in his walk, even with his eyes shut. The left pupil did not respond to light; it did move to accommodation (Argyle Robertson's symptom); it was wider dilated than the right. Eyesight seemed good. Ophthalmoscope showed no change. There was no tremor of facial muscles or of hands.

Patellar-tendon reflex was present, normal, in both legs.

Considering the combination of symptoms, the pain, the hyperæsthesia, the anæsthesia, the pupillary symptoms, and the occasional unsteady gait, I think the diagnosis of locomotor ataxia is justifiable. The case, then, is of interest, as being one in which the patellar-tendon reflex was not lost.

CASE 6.—Mr. R., æt. forty-four years, was seen in 1877. He had been under treatment with Dr. Derby, for about two years, on account of failure of sight. There was atrophy of the optic nerve. He had had pains in his legs for five or six years, which followed the course of the sciatic nerve to the knee, or beginning in the knee ran down to the foot. These attacks would last two or three days, sometimes so severe as to prevent walking for a minute, sometimes they would keep him awake at night. During three or four years he had these attacks every two to four months; earlier they were less frequent.

During two years he had had some failure of power in walking, and had had a sense of numbness, or as if asleep, in his hands and feet. Sometimes there had been a very slight staggering. There was sometimes a slight jerking of the legs at night. Sensation was somewhat diminished in the calves of the legs, and over hands and feet there was a sensation as if they were covered with a thick skin.

He did not show evidence of inco-ordination, walking fairly well with his eyes shut. He had to urinate often.

The galvanic current was used to his back; he was given ergot and nitrate of silver alternately. In three months he reported that he had less severe pain, and the attacks were less frequent and of shorter duration.

He went to California, to avoid the winter weather, and, on his return, five months later, reported that he was stronger; had had only one severe attack of pain after exposure to cold and wet. There had been no jerking of the legs at night, the sensation in calves had improved; on first examination he could feel two points, as such, only at a distance of two and a quarter inches, on return from California, at a distance of one inch.

Until now no examination of tendon reflex had been made. It was found present in both legs to a moderate degree, stronger in left than right.

The last I heard of this patient, two or three years ago, he was free from pain and able to attend to business, feeling strong and well. Of course, the atrophy of the optic nerve remained.

It is impossible to tell whether the patellar-tendon reflex was gone when he was first examined, and returned, or whether this is one of those rare cases, like the last, in

which that reflex was not lost. The disease was checked; most of the symptoms disappeared, and had not returned for three or four years.

CASE 7.—John M. B., 'longshoreman, æt. forty-six, entered City Hospital Nov. 27, 1882. Early history unimportant, excepting he had no syphilis; was a steady drinker, taking four or five drinks daily; he had worked where his feet were wet most of the time. For the last month he has had darting pains in his feet and calves; frequent cramps in his legs; numb feelings; diminished sensation in the calves, and tenderness along the tibia. His knees often give way, so that he has several times fallen. Frequent blurring of eyesight.

There was found considerable diminution of sensation to both touch and pricking in calves, with slight delay in transmission; less diminution over tibia. Sensation in feet more acute; excessive reflex on tickling soles of feet; no ankle clonus; considerable stiffness of legs; cremaster reflex present on both sides, but not very marked; abdominal reflex very slight, sometimes absent; entire absence of patellar reflex; there was considerable tremor of hands, not increased by motions that require a little care in execution; this ceases when the hands are at rest. There was a decided ataxic gait; with his eyes shut, he threw his feet about with the greatest irregularity, crossing them spasmodically. Great inco-ordination of hands; not able to touch nose with fingers if eyes are shut.

Dec. 4th.—Dr. Williams reports as to eyes: arteries very small; veins relatively enlarged, but about of normal size; disc not atrophied; vision and field good.

Dec. 30th.—A lack of equality in pupils was noticed, the left being much the larger, reacting vigorously to light; the right reacted very little to light.

He received one third of a grain of nitrate of silver, three times a day for about five weeks, and was galvanized along the spine.

Jan. 31st to Feb. 3d it is recorded that his pain diminished very decidedly; sensation improved, though it did not become quite normal. The inco-ordination of hands almost entirely gone; he walked fairly well, and stood well even with his eyes shut. Tendon reflex was well marked.

March 17th.—He was discharged.

The next case is one of unusual interest, on account of the rapid development of the symptoms, and the patient's improvement on removing him from the cause which gave rise to his illness.

The case is not presented as one of typical locomotor ataxia as usually seen, which runs a long and chronic course, yet there were present the symptoms which, when combined, we consider as characteristic of the disease.

Perhaps it may be looked upon as an acute case, and therefore more likely to show remission; but the cause operating again and again, the changes in the cord became more extensive and perhaps more permanent. Certainly the symptoms during the last attack were much more severe than during either of the others.

CASE 8.—James H., boiler-maker, entered hospital first Feb. 2, 1882, under Dr. Edes, to whose kindness I am indebted for the privilege of using the earlier records of the case. He had been generally well, had been in hospital once for a bronchial trouble, and once on account of fractured ribs. When at work he sits or lies on his back inside the boiler on cold iron subject to jar from blows on the outside. One year before entrance in February, 1882, he noticed a numbness of his feet, which continued afterward, and during the last three months had been accompanied with lancinating pains. There was also numbness in the lower lumbar region, extending to his hips. He had difficulty in walking, and for six weeks had been unable to walk in the dark. There was a feeling as if a thick carpet was between his feet and the floor. There was no numbness, pricking, or loss of strength in his arms. No pain in head, and no disturbance of vision.

There was found on examination to be marked anæsthesia of the soles and dorsum of feet and lower part of legs. He could not stand with his eyes shut. There was absence of patellar tendon reflex. The eyes were examined by Dr. Edes. In right eye there were some whitish streaks along the veins of disc and at outer edge of disc. Strong venous pulsation. Whole fundus was deeply pigmented. In left eye appearances were about the same, except a tolerably distinct white crescent at outer edge of disc; venous pulsation well marked.

He slowly improved, the pains disappeared, the sensation returned, he could walk well, could stand with his eyes shut, and on March 3d, a slight but distinct tendon reflex was present. He was discharged.

He went back to his work as boiler-maker, but worked less on inside of boiler. He worked till April 1st, then was obliged to give up, and entered the hospital April 7th. The symptoms were much the same as before, only less severe. There was decided anæsthesia of both feet, especially along the outer border and on the toes. Tendon reflex was barely perceptible.

He again improved, the tendon reflex becoming stronger, sensation returning, and May 7th he was discharged.

He entered the hospital again June 5th, with some of his old symptoms, and was discharged June 12th. Of this stay in hospital there is only a very brief record.

He entered again January 6, 1883. He had worked at blacksmithing until within three months, when he went back to his old work, working inside the boiler lying on his back. Up to six weeks he had no return of his old symptoms, being able to stand steadily with his eyes shut, patellar reflex being always present. Six weeks ago he began to have a return of numbness and pricking in his feet, with sharp shooting pains. He could not feel the floor well under his feet, and staggered a good deal in walking in the dark. He was easily fatigued; could walk only a short distance without stopping to rest. Feet were numb and cold. He had pain in the small of the back, and an occasional girdle sensation during the last week. There was also a feeling of numbness in his hands, so that he often dropped his tools in working. He had a slight headache for ten days. Vision he thinks was as good as ever; there was no diplopia. He had had dyspnœa and palpitation on exertion for a few weeks. He gave up work three weeks before entrance.

On examination there was found considerable inco-ordination of both legs and hands; diminished sensation to touch in feet and hands. A little more plantar reflex in right leg than left; entire absence of patellar reflex. Pupils were very contracted; responded very imperfectly to light; responded to accommodation.

Feb. 29th, there was a slight patellar reflex. He had gained control over his legs and hands to a great extent; he walked well with his eyes shut, and stood fairly steady. He was discharged March 7th, saying he felt as well as ever; the inco-ordination had disappeared. Patellar reflex was present, but not so strong as it often

is in health. On that day, Dr. Wadsworth examined his eyes and noted : pupils abnormally small, so that there is a darkish tinge to the disc and vessels : narrow crescent to outer side in each eye ; nothing else abnormal.

This patient has had a curious history. The combination of symptoms is similar to that found in locomotor ataxia, though the duration is short ; anæsthesia, lancinating pains, inco-ordination of both legs and hands, girdle sensation, absence of patellar reflex and pupillary symptoms ; yet there were repeated intermissions, one of six months' duration, in which he was able to do laborious work, and seemed to be well. Having acquired a knowledge of his symptoms while in hospital, he examined himself as to his ability to walk and stand with his eyes shut, and as to the presence of patellar reflex. During the six months' intermission, his condition was normal in these respects ; yet it is to be noticed that on the last admission there had been a decided advance in the disease as compared with his condition in February, 1882.

As to treatment—rest in bed was almost the only means used. No medicine likely to influence the disease was employed.

The first five cases are chiefly of interest on account of unusual individual symptoms, and sufficient has been said in regard to those. The last three cases and case 3 are of further interest as regards the prospect of improvement, whether great benefit or cure may ever be expected in locomotor ataxia. Mr. R., case 6, may be considered as virtually cured. He so considered himself ; he remained free from all symptoms of the disease up to the last time he consulted me in regard to whether a certain course would be prudent for him ; this was three or four years after I first saw him. It can hardly be doubted, that if the last patient had not gone back to his business of boiler-maker he might have

continued well at least for months or years, perhaps, would have had no recurrence. Case 7 was not well when he left the hospital, but had very much improved. How long this will last, of course cannot be known. Case 3 was also very much benefited by treatment.

A. Eulenberg (*Berlin. kl. Woche.*, No. 1, 2, 1883) has lately reported three cases of cure out of 300 patients. The cure was shown by the entire disappearance of all typical symptoms for several years; yet, in each of the three, slight paræsthesia remained. He used nitrate of silver, galvanism, and hydro-therapy. Each of his three cases was treated chiefly by one of these methods; the nitrate being used in two. He recommends, finally, the subcutaneous injection of a silver albuminate.

The treatment must be undertaken early in the disease if benefit is to be expected. I have seen many patients who were somewhat relieved in the earlier stages, but the older cases rarely obtained much benefit, yet, case 3 had had the pains seven years and was much helped. Of the other three cases which gained much, case 6 had been ailing five or six years; case 7 had noticed the first symptoms only a few months before he came under observation; case 8, only a year before his first entrance into hospital. It is reasonable to think that, when the symptoms develop rapidly the prognosis is more favorable.

We might question whether Eulenberg's patients were cured by the treatment, seeing they were each treated differently, or whether each method of treatment has its advantages in certain cases, or whether they simply recovered irrespective of treatment.

It has seemed to me, however, that the nitrate of silver is of real advantage, and has relieved many patients; besides this, galvanization of the spine, cautery, or dry cupping, have seemed to me to be of great benefit; but it is not my purpose to dwell particularly upon treatment.

AMERICAN NEUROLOGICAL ASSOCIATION.

NINTH ANNUAL MEETING.

First day, afternoon session.

The American Neurological Association convened at the New York Academy of Medicine, June 20, 1883. Dr. WILLIAM A. HAMMOND, of New York, the retiring President, called the Association to order at 2:30 P.M., and, after the following remarks, introduced the President-elect—Dr. Robert T. Edes, of Boston.

Present—Drs. Edes, W. A. Hammond, Mills, Morton, Webber, Dana, Putnam, Gibney, Shaw, Birdsall, G. M. Hammond, Amidon, Spitzka, and Ott.

Dr. HAMMOND said he had nothing special to remark with reference to the work of the Association at its last meeting, except to call attention to the fact that the papers read seemed to have attracted wide attention; for, at least half a dozen of them had been translated into almost every language in Europe, either wholly or in part. It seemed to him that there is a growing interest in neurological science, yet not so much, perhaps, as the subject deserves.

He hoped that the proceedings of the meeting might be as decisive, with reference to the prosperity of the Society, as were those by which it had been preceded. Dr. Hammond thanked the Association for the honor conferred upon him in electing him their presiding officer last year, and then introduced the President-elect, saying he had no doubt that Dr. Edes would receive fully as much consideration as had been extended to him, and would probably give

rise to a series of better meetings than those over which he had had the honor to preside.

PRESIDENT'S ADDRESS.

Gentlemen: I should have hardly felt willing to accept the office of President if I did not feel that it was tendered as a compliment to a senior member of the Association, for certainly some of the gentlemen, by reason of their scientific attainments, deserved the honor much more than I did. The notification from the Secretary that an address would be expected from the President, was received by me with a certain amount of misgiving, and my engagements have been such as have not permitted me to review the literature of our specialty in a way to enable me to prepare an address appropriate for the occasion. I think, however, that if I was compelled to select a single word which would include the progress which has been made of late years in neurology, that word would be "localization." Thanks to greater knowledge of anatomy and improved methods, we are constantly learning more and more of the seat of disease. We see where the blow has struck, but it is worth our while to consider how important is the knowledge which is so greatly lacking, or so merely speculative as to its nature and origin, and how essential it is that correct views should prevail as to early symptoms.

Two opposite views prevail in two classes of mind, as to the significance of symptoms which have not become thoroughly decisive.

One set of men, who may be found especially among the therapists, are prone to consider every recovery, after symptoms which are more or less allied to those found in the serious organic diseases, as cures, and such they may very fairly be called in some cases.

The error consists not in recognizing the beneficial effects of the treatment, but in not perceiving that disorders which are at the beginning functional, or hardly more than such, may turn either toward recovery or toward the establishment of organic lesions.

The word "functional," I know, is looked at a little

askance by the micro-pathologist, and justly so, for the more diseases we can remove from that category the better; but it must serve for a time to cover our ignorance of those processes which are pathological, but not, so far as our present knowledge goes, anatomical.

That changes unappreciable by anatomy may be the most dangerous, is proved by the existence of epilepsy, of fatal syncope, of shock, by the obscurity of the cause of so-called uræmia, and by the action of so many poisons, acute and chronic, which present absolutely nothing that is distinctive to the anatomist, and only occasionally to the chemist.

The other error accordingly is of the anatomist, who looks at all diseases in the light thrown backward from the autopsy, and who is apt to think of a lesion as existing from the beginning, and of recovery (?) from serious symptoms, not as a triumph of therapeutics, but as a mistake in diagnosis.

Both classes of minds are necessary to the progress of neurology, as of other branches of medicine, and both require for their correction that most important piece of apparatus without which no physiological laboratory, no matter how elaborate its fixtures, is of real value,—what is vulgarly known as the level head.

I know that these remarks are mere commonplace, but the errors are for all that deep-seated and common, and we see them running through neurological, perhaps more largely than through general medical, literature, and hear them quite as often as we read them.

How far can they be avoided? Not absolutely, it is evident.

Individual feeling will still dictate our stories of cure, and nature will still be thrust *more or less* into the background by the sanguine and the sceptical.

Progress in physiology and pathology,—and by these I do not mean merely pathological anatomy, but the science of life, normal and morbid,—must be founded on experiment, on anatomy, on chemistry (too much neglected in this point of view), on minute physics, and on clinical observations.

This science, in the department of neurology, is limited in practice, it is true, but really almost co-extensive with medicine; and we are to help to build it up. And one of the advantages of such an Association as ours is that it brings into contact, perhaps into collision, different classes of minds, different local views, which may mutually correct each other, that the enthusiast may be restrained and the sceptic encouraged.

One of the first thoughts in all our minds to-day must be the losses which the meeting of to-day has sustained in the absence of our Secretary, who has done so much, not only of the scientific, which was his delight and our profit, and whom we hope another year will return to us, and in the death of one with whom many of us often differed, but whose laborious investigations and suggestive writings have added so much to our interest and instruction. After these vague generalities, for which the gentlemen who prepared the card are quite as much responsible as myself, let us proceed to more exact and profitable labors.

The next order of business was the reading of the minutes of the last annual meeting. Dr. HAMMOND moved that as they had been published, the reading of the minutes be dispensed with. Carried.

The President called for the report of the Council, and Dr. HAMMOND, the only member present, remarked that there had been no meeting of the Council since the last meeting of the Association, and that not a sufficient number of the members were present to have a meeting at the present time. He therefore moved that the by-laws be suspended, and that the papers of candidates for admission be referred to such members of the Council as might be present, with two other members to be appointed by the President. Carried.

The President appointed Drs. Putnam and Mills to act with Dr. Hammond as councillors.

After a recess the Council reported that they had examined the papers presented by the following candidates, whom they recommended should be elected to membership in the

Association : Drs. Leonard Weber, of New York ; G. L. Walton, of Boston ; and J. T. Eskridge, of Philadelphia.

The President appointed G. M. Hammond, teller, and a ballot was taken on the name of Leonard Weber, and the result showed that he was unanimously elected. Dr. W. J. Morton was appointed teller to take the ballot on the name of G. L. Walton, and the result showed that he was unanimously elected. Dr. Kinnicutt was appointed teller to take the ballot on the name of Dr. J. T. Eskridge, and the result showed that he was unanimously elected.

On motion by Dr. SHAW Dr. R. W. Amidon was nominated Secretary *pro tem.*, and was unanimously elected,

The Secretary *pro tem.* then stated that he had received several pamphlets, monographs, and letters from various members of the Association, and from others, and on motion they were accepted and ordered placed on file.

Dr. AMIDON also read the report of the Treasurer, which upon motion was adopted.

NOMINATION OF CANDIDATES.

Dr. W. A. HAMMOND nominated Dr. Ralph L. Parsons, of Sing Sing, New York.

The President nominated Dr. Charles F. Folsom, of Boston.

NOMINATION OF OFFICERS.

Dr. W. J. MORTON nominated Dr. Isaac Ott, of Easton, Pennsylvania, for President.

Dr. W. A. HAMMOND nominated Dr. Landon C. Gray, of Brooklyn.

Dr. CHARLES L. DANA nominated Dr. C. K. Mills, of Philadelphia, but Dr. Mills declined the nomination.

Dr. MORTON moved that the nominations for President be closed. Carried.

Dr. V. P. GIBNEY nominated Dr. W. R. Birdsall, of New York, for Vice-President.

Dr. F. P. KINNICUTT nominated Dr. J. J. Putnam, of Boston.

On motion the nominations for Vice-President were closed.

Dr. J. J. PUTNAM nominated Dr. R. W. Amidon for Secretary and Treasurer, but at the suggestion of Dr. W. A. Hammond, withdrew Dr. Amidon's name, and substituted that of Dr. E. C. Seguin.

Dr. V. P. GIBNEY nominated Dr. R. W. Amidon.

On motion the nominations for Secretary and Treasurer were closed.

Drs. J. J. Putnam, of Boston; V. P. Gibney, F. P. Kinnicutt, and W. J. Morton, of New York, were nominated for Councillors.

The President appointed Drs. S. G. Webber, of Boston, and C. K. Mills, of Philadelphia, Tellers, and as a result of balloting the following officers were elected :

President, Dr. Isaac Ott, of Easton, Pennsylvania.

Vice-President, Dr. W. R. Birdsall, of New York.

Secretary and Treasurer, Dr. R. W. Amidon, of New York.

Councillors, Drs. V. P. Gibney and W. J. Morton, of New York.

MISCELLANEOUS BUSINESS.

The Secretary read a communication from Dr. W. Bechterew, of St. Petersburg, with reference to the annual prize offered by the Association, called the Hammond prize.

On motion of Dr. WEBBER, of Boston, the Secretary was authorized on behalf of the Association to acknowledge the receipt of the communication.

Dr. CHARLES L. DANA, of New York, moved that the President appoint a Committee of two to prepare suitable resolutions with regard to the death of Dr. George M. Beard.

The President appointed as such committee Dr. C. L. Dana and Dr. C. K. Mills, and also suggested that instead of resolutions such as are usually reported under such circumstances, the Committee prepare a letter or a minute, which could be entered upon the record without the form of adoption by the Society; the mere fact of a Committee being appointed, in accordance with a motion passed by the Society, being evidence that the Association had taken action concerning a deceased member.

There being no other miscellaneous business the Association proceeded with its scientific work.

Dr. W. J. MORTON, of New York, then read a paper on "Neuritis following dislocation."

The paper constituted a contribution to traumatic neuritis, and was illustrated by a case following dislocation of the humerus. The essential features were the following: injury to the brachial plexus, motor paralysis, sensory disturbance (exaggeration of tactile sense, hyperalgesia, diminished temperature sense), reaction of degeneration, œdema, glossy skin, painful joints, causalgia, fibrous hyperplasia, neuro-muscular hyperexcitability, extension of disturbance to opposite member. That is to say, ascending neuritis.

The patient, Alexander M., sixty-five years of age, about ten months ago slipped on the sidewalk and fell, striking on his right shoulder. His arm was rendered nearly motionless, the shoulder painful, and soon the hand and forearm swelled. He went to Bellevue Hospital, had his shoulder "set," and remained there two days. From the hospital records the following note was taken: "Admitted September 27, 1882. Diagnosis: alcoholism and dislocation of the humerus. Discharged September 29th." The record was important only as establishing the fact that dislocation existed. About a week after the accident occurred pain began in the hand, and has continued up to date, although diminished in degree. At the same time the hand began to swell, and later the skin became glazed. At the present time the hand is much enlarged, stiff, brawny, and club-like, presenting a marked contrast with the wasted arm. There was some œdema, and the nails were curved and club-shaped, and presented transverse ridges, and grew very rapidly. There is complete atrophy of the hairs.

Dr. Morton then gave in detail the motor and sensory symptoms, and the electrical reactions, with reference to neuro-muscular hyperexcitability. The biceps could be made to produce strong contraction by pinching any portion of it with the finger, or making pressure with a penholder; and once in contraction it remained so for about a minute, no matter at what angle it was placed. Thus a tendency to

the cataleptic condition was superadded to excitability to mechanical irritation. There also existed marked fibrous hyperplasia, affecting the pulp of the fingers, and occupying the interspaces between the phalangeal joints.

The electrical reactions in the left arm showed that this too is now affected to a certain extent. There is diminution of the cathodic closure to contraction in certain groups of muscles. The patient had been treated with electricity, severe blistering over the track of the brachial plexus, hot and cold douches, and cod-liver oil, and in view of the nature of his injuries had made excellent progress.

An interesting feature in the case was the fact that the left or opposite arm at the end of ten months showed evidence of being affected by the injury originally inflicted upon the right axillary plexus. Quantitative electrical changes were present, and approach to the reaction of degeneration so prominently displayed in the right arm; but more curiously, neuro-muscular hyperexcitability was also present in the left arm, although in a modified form. Mitchell records a number of cases in which from an injury of the nerve of one member the corresponding member becomes affected. Recently Charcot, in a clinical lecture, referred to an instance of contusion of the sciatic nerve, where the neurosis extended upward and involved the cord, and caused motor and sensory disturbances in the opposite leg.

Two noteworthy symptoms remained to be noticed: First, fibrous hyperplasia; second, the phenomenon of neuro-muscular hyperexcitability. The usual nutritive disturbance following neuritis is atrophy of various tissues. Dr. Morton had found only one case of hypertrophy of the connective tissue—that reported by Weir Mitchell,—and in his case the condition of the limb could almost be described in the same language which had been used by Mitchell, and the case formed a fitting companion for it. Charcot, in his thorough study of the disorders of nutrition consequent upon lesions of the nerves, makes no reference to hypertrophy of the connective tissue. This case, then, as regards the hyperplasia, ranks with Mitchell's as a unique observation.

With reference to neuro-muscular hyperexcitability, if

we would find an exact parallel we must turn to Charcot's description of the condition discovered by him during the lethargic stage of hypnotism, and designated by him neuro-muscular hyperexcitability. After reviewing Charcot's views and conclusions at some length concerning this phenomenon, Dr. Morton concluded that neuro-muscular hyperexcitability is not alone found in the hypnotism of the hysterical, but that it may exist in ascending neuritis which has reached the spinal centres.

Remarks on Dr. Morton's Paper.

Dr. C. K. MILLS, of Philadelphia, said that Dr. Morton's case called to mind several cases of brachial neuritis which had fallen under his observation, two or three of which he had already reported at different times. In one of them he remembered distinctly most of the phenomena mentioned by Dr. Morton, even that which he had spoken of under the term of neuro-muscular hyperexcitability; this symptom was present in one arm at least.

In one case the patient got his arm caught in a belt of machinery. The arm was broken, and there was immense torsion exercised upon it. That case was first seen by him five or six years ago, and finally became one of the chronic cases at the Philadelphia Hospital. The patient had somewhat recently developed a similar condition to that described by Dr. Morton as existing in the other arm.

As to the question of neuro-muscular hyperexcitability, there could be but little doubt that it presented one of the best fields for discussion from a scientific standpoint.

In the case of the man who had his arm caught in the belt, this condition of excitable response in the muscles was present, and whether it was of the same nature present in the cataleptoid forms of hypnotism, such as is seen in the cases reported by Charcot,—also seen by many others,—would be an interesting question for study. The best explanation at present seemed to be, as Dr. Morton had stated, that the phenomenon depended upon undue reflex action. Then the question arises, what gives the muscles, or group of muscles, the power of repose and relaxation in the ordinary

normal condition; and speaking in general terms, this might be answered by stating that it is due to the balance between the cerebral control and spinal reflexes; perhaps better, the balance between the spinal control and automatic reflex. We have in the hypnotic condition alluded to the same sort of condition, but the cause of it is at the other end of the nervous system, and the cerebral inhibitory action in the ganglion cells is dormant, or in a suspended condition. There may exist a condition of this kind of simple hyperexcitability of the nerves and an inflammatory condition of the spinal centres themselves, the cerebrum remaining comparatively intact. We see this exalted reaction and similar phenomena in cases in which there is limited inflammation of the cord, as in compression myelitis, which are practically, so far as explanation goes, nearly the same. Only day before yesterday he saw a case of this kind in which there was not only pain, but hyperexcitability at various motor points for the muscles of the legs, which were practically the same as shown in the case with neuro-muscular hyperexcitability of Charcot. In such cases there is simply a neuritis, and the hyperexcitement of the spinal centres explains the exalted reflex action which results. He did not wish to say that he could absolutely limit the production of movement of certain muscles which work in harmony, but the excitability seemed to depend upon the neuritis which secondarily gave rise to an excitable condition of the spinal cord.

Dr. GIBNEY asked Dr. Mills if, in the cases of compression myelitis, he wished to be understood that the excitability of the spinal nervous centres inhibited the cerebral activity.

Dr. MILLS replied that the cases were susceptible of a double explanation; that the exalted reflex action might follow local irritation, giving rise to an excited condition of the reflex centres of the cord. On the other hand, where you have the cerebral inhibitory apparatus cut off, from the very nature of the case you have put the impressions made upon the peripheral portion beyond the control of cerebral power.

Dr. GIBNEY thought the question an important one, as

bearing on prognosis to be given in Pott's disease, because where the excitability of the muscles was most marked in those cases, he could promise the patient that there would be a more complete cure, and within a shorter time, than when the excitability of the muscles was delayed for some time. He doubted with the two theories advanced by Dr. Mills, whether such a prognosis could be so safely given.

Dr. WEBBER, of Boston, said that he did not know that he could add any thing to the scientific portion of the discussion, but he had been interested with reference to treatment. He thought that sometimes we lost sight of treatment in considering the essence of the question. The treatment of neuritis is rather unsatisfactory at best, although he had found, in his experience, that that which had been recommended by Dr. Morton had afforded the most relief; namely, the application of blisters. He had treated patients with electricity without blisters, and had been dissatisfied, and he had been obliged to resort to blisters or to some form of counter-irritation, and in every case which he had had under his care the patients had done remarkably well. He had had several cases where inflammation extended up the nerves, and in one case it had apparently nearly reached the spinal cord. There was none of the hyperplasia mentioned by Dr. Morton, and with reference to excitability, he did not test it on account of the pain and the general condition of the patient, but in this case blisters did more good than any thing else that was employed. The after-treatment by electricity is of much value, but according to his experience electricity alone had not proved satisfactory.

Dr. W. A. HAMMOND thought that one of the prime elements in our methods of effecting a cure in neuritis, is to secure as far as possible rest of the nerve. We know very well that in conditions affecting other tissues, rest is one of the most essential elements in cure. We know that in inflammation of the retina very much light is prejudicial to the progress of the case, and it had seemed to him that the mere transmission of mental action to the voluntary muscles tends to aggravate the inflammation and to retard cure, and

for that reason he had invariably enjoined absolute rest, and in several cases he had resorted to stretching of the nerve for that very purpose. It had seemed to him that the only way in which stretching of an inflamed compound nerve can act is by securing rest. Not long since an officer of the navy was referred to him, suffering from neuritis, and he recommended stretching of the nerve in his case. The circumstances were such that he was unable to submit to the operation here, nor was he able to submit to the treatment at the hands of Dr. Bloodgood, from whom Dr. Hammond received the patient, but he gave him a letter to Dr. Wales, Surgeon-General of the Navy in Washington, who performed the operation of stretching the nerve, and the result was complete relief of the intense agony from which he suffered, and it eventually cured the case. Dr. Hammond thoroughly agreed with Dr. Webber in his endorsement of the use of blisters, but he did not think that blisters could take the place of rest. With regard to the use of electricity, he thought that every thing which jarred the nerve did harm, and he did not know of any thing more prejudicial to rest of the nerve than the use of the faradic current. The passage of the continuous current, if arranged properly, possibly might do some good, the same as the application of nitrate of silver is beneficial to an inflamed eye, but he was not sure that it was very beneficial. He was very positive that faradism, at least in his hands, had been a very great means of aggravating the pain and retarding cure, but so far as counter-irritation is concerned, he did not know of any thing better than blisters, unless it was the actual cautery, which he had used in some cases with good results. In one case particularly, of a protracted inflammation, he had derived very excellent results by the application of the cautery, and he thought that the application of the hot iron along the course of the nerve was very frequently beneficial, especially as far as relief from pain was concerned.

Dr. WEBBER remarked that he thoroughly agreed with Dr. Hammond with regard to rest, and that that point was in his mind when he arose to speak, but he accidentally omitted to mention it. Sometimes he had applied the

starch bandage, which gave still greater rest than could be obtained without giving some artificial support. He would not think of using the faradic current on account of the irritation which it gives the nerves. He had used the galvanic current as carefully as possible, producing as little variation in the current as might be, using both the ascending and the descending currents, without any benefit at all in cases which finally rapidly improved under rest and blisters. The case last mentioned by Dr. Hammond was somewhat different from traumatic cases, but cases arising from brushing of the nerves in dislocation and stretching, etc., he had found to be benefited by this method of treatment. With reference to the actual cautery, he had had comparatively little experience in its use in these cases, but in other cases of neuritis he had used it with advantage.

Dr. PUTNAM, of Boston, thought the discussion should not be allowed to pass without a few words in favor of the use of ice, which he believed to be a remedy of the greatest possible value; of course it should be combined with rest. He thought it was of greater value than any other one remedy which he had resorted to. The objection sometimes raised that it increases the irritation of the inflamed part is applied to cold when used of too low degree and intermittently. If ice is used day and night in succession, or a great many hours together, and the precaution is taken not to have the cold too great, having sufficient flannel between it and the skin, it is of the greatest possible value. He remembered Dr. Mitchell speaking to him of the application of ice in the treatment of sciatica, applied along the thigh and leg, and he had used it in one or two cases for several weeks together with marked relief and permanent beneficial results.

Dr. C. L. DANA, of New York, read a paper entitled, "Note on hydrobromic acid as a substitute for the bromides." After making brief reference to the literature of the subject, Dr. Dana stated that this acid had been used by the profession chiefly with quinine, under the belief that it prevents or lessens cinchonism. The only extended record of clinical observations regarding it that he had been

able to find was one by Massini, published two years ago, who used it in thirty-one cases of various kinds without special benefit. Dr. Dana was led to experiment with hydrobromic acid in the hopes that it would have produced the beneficial effects of the alkaline bromides in epilepsy, without causing depression and scurvy. He had now used hydrobromic acid in the treatment of various nervous affections for nearly two years at the Northeastern Dispensary, and of over fifty cases had clinical notes. They included epilepsy, alcoholism, congestive headache, unilateral headache, spermatorrhœa, vertigo, general nervousness, chorea, insomnia, hysteria, paralysis agitans, post-hemiplegic cerebral (vascular) disturbance, senile melancholia. The officinal dilute acid is a ten-per-cent. solution, of which the dose would be from one drachm to two drachms and a half, well diluted. In epilepsy, some patients received marked benefit from the use of the acid in doses of four to five drachms a day. Dr. Dana believed, however, that in epilepsy hydrobromic acid could not be used as a substitute for the bromides except in the non-controllable cases, and yet it undoubtedly has a controlling influence over the disease. In chorea, he thought the acid could be used advantageously as a medium for arsenic or strychnine when it is desired to give a sedative. In alcoholism it failed in two cases, the patients being on the verge of delirium, and the bromides with chloral were subsequently given with relief.

Hydrobromic acid is a good solvent of quinine, but it does not prevent cinchonism as has been asserted, certainly not in the small doses usually prescribed. In most cases of insomnia it also acts well. He was positive that he could give the acid with just as much confidence that it would produce nervous sedation as when the alkaline bromides are prescribed. Its advantages are, that in moderate doses it is not disagreeable; it does not constipate or irritate the stomach; it may be given when an acid is indicated for the stomach; it can be conveniently prescribed with iron and tonics, and finally, in the largest doses, long continued, he had never seen any sign of bromism or any disagreeable constitutional effect other than some drowsiness. He be-

lieved that the ordinary custom of prescribing from twenty minims to one drachm of the three-per-cent. solution, the strength ordinarily employed, or even of a ten-per-cent. solution, was generally much too small a quantity. Theoretically, in order to get the sedative action, from a drachm and a half to two drachms and a half of the ten-per-cent. solution must be prescribed. Practically, he had found that very satisfactory sedative effects could be produced with drachm doses of the officinal dilute solution.

In conclusion, the acid could be substituted for the bromides in all the milder affections for which the latter are used. It had appeared to him to be especially efficient in producing vascular and nervous sedation in the post- and prae-hemiplegic conditions. Unless given in very large doses it takes several days to get its best sedative effects.

Remarks on Dr. Dana's Paper.

Dr. W. A. HAMMOND, of New York, said he began the use of hydrobromic acid some seven or eight years ago in accordance with Fothergill's formula, which gave a solution of a strength of three per cent. He had also used it in a much stronger solution. Of the three-per-cent solution, he had administered a teaspoonful or more at a dose, and continued to employ the remedy up to a comparatively recent period, but had abandoned it because he was unable to see that it did any good except in a very limited number of cases. He had found, however, that it does prevent the unpleasant effects of the sulphate of quinine, and he formerly administered it in combination with that drug, but even there it had not, in his experience, been so efficacious as corresponding doses of one of the alkaline salts of bromine. He did not think, in this particular, that it had any advantages over any one of the alkaline haloid salts, or that it could be used as a substitute for them. For the prevention of cinchonism, however, a small dose of the bromide of sodium administered with quinine was far more efficient. Hydrobromic acid did prevent the unpleasant effects of the sulphate of quinine, and it had been his custom to prescribe in combination five to ten grains

of quinine with one drachm of hydrobromic acid, and uniformly cinchonism had not been produced, but further than that he had not derived any satisfaction from the use of the drug. He had, however, used it in comparatively small doses, except in one case in which he prescribed as for Fothergill's solution, but he omitted to make that statement, and the patient took the prescription to the apothecary, who gave him Squibb's solution, which is a ten-per-cent. solution, and took it according to directions, and it nearly killed him. He took it in a small quantity of water, and it produced excessive irritation, and he even went so far as to consult a lawyer with reference to bringing a suit against the apothecary, but Dr. Hammond advised him not to bring the suit, and in that way the apothecary escaped, as did also Dr. Hammond. The bad results, however, were due simply to the local irritation produced by the stronger preparation not properly diluted.

Dr. ESKRIDGE, of Philadelphia, said that he began the use of hydrobromic acid in 1876, and adopted it for its effects upon the ear. He thought that it indeed did have an influence on buzzing in the ear, but only in certain cases; only in those cases which have this unpleasant phenomena from congestion of the internal ear, and he believed that this was one of the ways in which it lessened the bad effects of quinine; that is, by diminishing the congestion. He could corroborate Dr. Hammond's statement with regard to the influence of hydrobromic acid in lessening the unpleasant effects of quinine.

There was another class of cases in which he believed it could be used with benefit. He thought that in typhoid fever there was an indication for the administration of an acid, and he believed that hydrobromic acid was the best preparation that could be employed. He had, however, almost entirely abandoned its use for the purpose of counteracting the unpleasant effects of quinine, and had substituted either the bromide of sodium, or, better still, morphine.

Dr. DANA, in closing the discussion, said that Dr. Hammond had prescribed the doses which were usually given of

Fothergill's solution, which, as his druggist had told him, was a three-per-cent. solution. As he recollected, the dose given in the United States pharmacopœia was two drachms of the ten-per-cent. solution. Those who had been prescribing from one to two drachms of the three-per-cent. solution had been giving only three or four grains of the bromide of potassium, and, therefore, he thought they had not tested the acid so far as its sedative effects were concerned. With reference to the palatableness of the acid, if one drachm of the ten-per-cent. solution were combined with a drachm of cinnamon water and from one to three drops of nux vomica, it made a palatable dose. A five-per-cent. solution was one which the patient could easily take. He had always been in the habit of telling the patient to dilute the dose well, certainly in one-quarter or one-half a tumbler of water, and he had had no complaints from its causing nausea or gastric disturbance.

So far as the influence of hydrobromic acid in preventing cinchonism was concerned, of course Dr. Hammond's experience and his own were at variance. He had had extensive opportunity to test the drug clinically, however, and he had not been able to see that cinchonism had been prevented in that particular case, and he had not seen any clinical reports which he had thought would prove that cinchonism could be prevented by the use of this drug. Still he was willing to accept the larger experience of those gentlemen who did not agree with the results of his observations.

Dr. HAMMOND said that there was one point upon which he would like to ask Dr. Dana a question for the sake of information. He had been accustomed for several years to give a tonic solution containing strychnine, sulphate of quinine, pyrophosphate of iron, dilute phosphoric acid, and syrup of ginger. Several years ago he substituted hydrobromic acid for the phosphoric acid for the purpose of preventing the unpleasant effects produced by the sulphate of quinine, and he had received from several different sources positive information that the strychnine had been precipitated so that nearly the entire quantity contained in the

prescription had been taken at the last dose. It seemed to him that if that was so it was a matter of considerable importance with reference to the combination of strychnia and hydrobromic acid. Strychnia is soluble in phosphoric acid, but it seems to be precipitated in the presence of bromine. He thought that the same thing occurred when any one of the soluble bromides is given in conjunction with strychnia.

Dr. DANA replied that he imagined the precipitation is due to the fact that dilute hydrobromic acid is prescribed. He was quite sure that a ten-per-cent. solution of hydrobromic acid will dissolve strychnia; at least his druggist had told him so, and he had used it accordingly. At the same time he did not wish to state with positiveness without further inquiry, because he had not made experiments himself with reference to this particular point. He had administered it with arsenic, and felt quite sure that dilute hydrobromic acid will dissolve arsenious acid; for when the dilute acid is mixed with Fowler's solution it makes a clear solution, and he had been accustomed to prescribe it in that way.

Dr. J. J. PUTNAM, of Boston, then read a paper on "Lead-poisoning simulating other diseases; a source of error in the analysis of the urine for lead." A number of cases had come to his notice within the past few years, in which an examination of the urine has shown the presence of lead, which the symptoms and clinical history were not such as are usually considered characteristic of lead-poisoning; in fact simulated other types of diseases. One case resembled the so-called lateral sclerosis, one of the transient forms of poliomyelitis anterior; two others, a more diffused form of myelitis: while both were cerebral neuroses.

It is of course nothing new to say that lead-poisoning may simulate other diseases, or that any one or all of the classical symptoms may be wanting. So far as he knew, the first case in which lead was supposed to have given rise to symptoms simulating any other form of spinal diseases than poliomyelitis anterior, is one reported by Dr. F. Minot, of Boston, before the Medical Improvement Society, in 1881,

and recorded in the *Boston Medical and Surgical Journal* for the same year. Here the symptoms of so-called lateral sclerosis were present to some degree; lead was twice found in the urine, and the patient improved materially under the use of iodide of potassium. Dr. Webber, at the last annual meeting of the Association, directed attention to a certain point in the pathology of lead-poisoning, and again brought forward this fact of the relation between it and organic disease of the spinal cord. Although the idea is not new, Dr. Putnam ventured to think that we had not, as yet, realized how often this will occur. In none of the eight cases reported in his paper, were blue line on the gums, colic, emaciation, or discoloration of the skin, characteristic localized trophic paralyses, or typical cerebral symptoms present, and the diagnosis was established solely through the examination of the urine after the administration, for a few days, of the iodide of potassium. It is, of course, not certain that the symptoms reported were really due to the influence of the lead; and even if this could be shown, it would still be uncertain whether the lead acted in virtue of the special affinity for certain tissues, or indirectly by interfering with the nutrition of the cord, or the general nutrition, to such a degree as to allow latent susceptibility, or otherwise insufficient causes of disease, to become active causes,—play a similar rôle to that probably played by syphilis in the causation of tabes dorsalis. All the chemical work of the investigation was done in the laboratory of the Harvard Medical School under the supervision of Professor E. S. Wood. Under the vague term lead encephalopathia, a variety of nerve symptoms have been described, of which delirium, mania, dementia, epilepsy, and coma, are at once the severest and the better recognized; but the disease is no doubt capable of giving rise to a variety of less slowly marked but not less important signs. The pathogenesis of these conditions is obscure and certainly complex, but the relation of lead-poisoning to nephritis, gout, anæmia, points out more than one direction in which a rational explanation is to be sought.

Apropos of the contamination of water from lead pipes, Dr. Putnam mentioned a point of practical interest obtained

from an intelligent plumber. It is well known that hot water is more apt to dissolve lead than is cold, but it is not, probably, so generally realized that this fact makes it objectionable to run hot- and cold-water pipes side by side through houses, especially when the latter carry water for drinking purposes. The plumber assured him that cold-water pipes under such circumstances are apt to be considerably corroded.

Dr. Putnam then directed attention to a caution necessary in the chemical examination of the urine for lead, and to the occasional, if not frequent, source of error. The detection of this metal is by no means without its difficulties. The quantity of lead present in the urine, especially when no iodide of potassium is being taken, and also after this drug has been taken uninterruptedly for some time is very small. The quantity of urine, therefore, analyzed should be at least one quart, and should be collected during the administration of iodide of potassium, given either for the first time or after an interval of repose. One source of error has recently suggested itself to Prof. Wood, and it is that the tests hitherto used for lead apply equally well to bismuth, a drug that is very frequently prescribed both in private and hospital practice. How long the bismuth continued to pass off through the urine has not been shown, but it has been found in the tissues of the rabbit for eight days after the administration of a few grains, and also in the human liver and kidneys five days after the administration of fifteen grains.

For the sake of investigating this point further Dr. Putnam took from thirty to forty-five grains of subnitrate of bismuth daily for two weeks. At the end of this time, while still taking the drug, his urine contained bismuth. After ceasing to take the drug for twenty-four hours he again took iodide of potassium, and his urine again contained bismuth. The most reliable way to avoid the error is to make sure that the patient has taken no bismuth within a considerable period before the examination for lead is made. Dr. Putnam was obliged to omit two cases from his collection on account of this discovery.

At the close of the reading of his paper Dr. Putnam exhibited a metallic urinal designed for females, to be used while sitting in a chair.

On motion by Dr. W. A. HAMMOND the discussion on Dr. Putnam's paper was postponed until the evening session.

The Association then adjourned to meet at 8:30 P.M.

First day, evening session.

The Association was called to order at 8:30, P.M., by the President.

Present—Drs. Edes, Eskridge, Weber, Webber, Morton, Walton, Shaw, Putnam, Ott, G. M. Hammond, Amidon, Dana, Sinkler.

Remarks on Dr. Putnam's Paper.

Dr. WEBBER, of Boston, said that the paper was an interesting one, and he believed that we had not yet got at the bottom of the influences which lead may have upon the nervous system. Dr. Putnam had spoken concerning various sensory disturbances, particularly anæsthesia, which some of his patients suffered from. Dr. Webber had noticed in every case of lead-poisoning affecting the spinal cord, which he had examined, that the patients had various disturbances of sensation. These were sometimes so insignificant that patients paid but little attention to them, and it was necessary to cross-examine and return to the subject time after time, in order to find out whether or not these disturbances of sensation existed. At other times the disturbances were so marked that the patients spoke of it themselves. Dr. Putnam had also mentioned one source of error in examining the urine for lead, and Dr. Webber wished to speak of another, namely, that if the urine is allowed to stand and undergo partial decomposition, it becomes alkaline, and a chemical reaction takes place between alkaline urine and the glass itself, by which lead is set free and appears in the urine. He had therefore been in the

habit of asking patients to put a small quantity of acetic acid into the bottles in which the urine was preserved, in order that this source of error might be excluded.

Dr. MILLS, of Philadelphia, said that Dr. Putnam's paper had interested him in a direction of which he thought it worth while to speak; that it is a proper view concerning the nature of this and other metallic toxic poisons. He thought that not a sufficiently comprehensive view of cases of this kind was usually taken. Every one in practice had seen cases of toxic effects upon the nervous system produced by arsenic, copper, and other metallic agents, and also such as were manifested by diphtheritic paralysis, paralysis following various so-called zymotic diseases, and we were apt to take a too limited view with reference to these agents. Just as Dr. Putnam's cases had pointed out, while we are likely to have typical forms of the affection, we may get affections of all kinds, cerebral, spinal, and otherwise, and he had seen not only bilateral paralysis of the extensors, but almost every form of paralytic affection, and also some forms of tremor in lead-poisoning. In a paper which he had read on arsenical paralysis he referred to a number of cases found in literature, and quoted the view expressed by Ringer in his work on therapeutics, which is a very suggestive one. Ringer suggests that these poisons affect protoplasm, and Dr. Mills thought there was a great deal in that single sentence of suggestion, and he thought that if cases of lead paralysis were studied in their extreme minutiae it would be found that not only the nervous system was affected, but that other organs were involved, either in the way of diminution of their physiological function or their elective action, and that the nervous phenomena were perhaps largely in proportion to the effect produced of this character. Certainly it is so in arsenical and phosphorus poisoning, and perhaps in diphtheritic poisoning, where myelitis may occur as a result of the action of the toxic agent, or neuritis attended with myelitis, and the tissues everywhere affected; that is, the poison is a protoplasmic one, and has a particular selection, for reasons which we do not at present know, for certain parts and certain systems.

Dr. PUTNAM, in closing the discussion, said that his paper was prepared with special reference to two practical points. He thought it important to make routine examination of the urine in a great many cases, to see how far we can find lead where no characteristic symptoms are present. The second point was with regard to bismuth; that is, that the same reaction is obtained with bismuth as with lead, and therefore it is important that bismuth should not have been taken for a considerable time prior to the testing of the urine for lead. It has not yet been positively determined how long bismuth remains in the body before it is entirely eliminated, but evidently it is not entirely eliminated for some time.

At a subsequent session of the association, Dr. Putnam added the following fact: that according to the last examination made by Prof. Wood, bismuth had been detected in the urine as late as four weeks after it had been taken.

Dr. J. T. Eskridge, of Philadelphia, read a paper which included the report of "A case of general neuralgia."

G. B., a German, twenty-nine years of age, married, a laborer in a foundry. Denied ever having had venereal, and there was no external evidence of specific disease, and his children—three in number—were well developed and healthy. He enjoyed good health until the year 1873, when he suffered from an attack of pneumonia, affecting the left side, and was confined to his bed four weeks. Two years ago, after sleeping one night in a damp bed, he noticed a dull heavy pain in the dorsal and lumbar regions of the spine. This pain continued about one month, and was then accompanied by severe pain in the course of the left sciatic nerve. During these two months he managed to hobble to and from his work, a distance of several squares, and was compelled to stand on his feet about two hours daily. The following summer he was able to walk quite well, although a little pain was experienced when the left sciatic nerve was firmly pressed upon. In October, 1881, melted iron fell into his left shoe and burned his ankle severely. The burn was mostly superficial, but its area was greatest around the internal malleolus; on the outer aspect of the ankle the area was small, but the wound extended to the bone. For this burn he remained in the hospital of the University of Pennsyl-

vania ten weeks, and left comparatively free from pain, and returned to his work. One week later he began to experience great pain in the left leg and ankle. This attack lasted about one month, and the pain was greatly relieved by pressure over the sciatic nerve as it emerged from the pelvis. During the next ten weeks he suffered more or less pain, but was able to work. In October, 1882, he remained five weeks in the hospital, suffering from severe pain which extended from the lumbar region down the posterior portion of the thigh and leg to the left foot, most intense in the ankle. He improved somewhat in the hospital, but after returning to his work the pain became worse than it had been at any previous time. In January, 1883, he was scarcely able to walk, complained of great pain in the leg and back, sleep was broken, appetite capricious, bowels constipated, temperature 100°, pulse 92, respiration 24. His spine was tender on pressure in the dorsal and lumbar regions. All the superficial nerves of the left leg and gluteal region were the seat of neuralgic pain, and the light pressure over any portion of the affected nerve greatly increased his suffering. Nothing except hypodermic injections of morphia and atropia afforded any relief, and the effect of these medicines soon diminished. Chloroform injections increased rather than diminished his pain. In February the internal saphenous and genito-crural nerves became neuralgic. The left side of the scrotum was red and burned like fire, and was exceedingly sensitive to the touch; the right side was normal. Double intercostal neuralgia soon became well established and nearly constant. The only relief afforded the patient came from the alternate use of hot and cold applications to the spine and painful sciatic nerve; bladders filled with ice and rubber bags with hot water were alternately applied every five minutes for an hour each day. When this was faithfully carried out the pains were greatly lessened, no morphia was required, and the patient's appetite and general condition improved. Finally this plan of treatment was abandoned because of lack of assistants in the hospital; but by the middle of April the man could walk slowly about the wards. Most of the large superficial sensitive nerves were painful to pressure; the left fifth cranial nerve alone having escaped.

On the 12th of April he first experienced slight pain in the right sciatic nerve, and it became painful soon after the moderate application of the faradic current. On a few occasions since there has been slight pain in the right knee, but the right sciatic nerve now

does not seem to be generally involved. Electro-muscular contractility was well preserved and about equally on both sides of the body, but was increased in the left leg and in both arms. The special senses were not affected, except that smell was not so acute, and taste on the left side of the tongue was impaired.

May 29th. No waste of muscles. His general condition has been improved for two months, during which time he has been treated exclusively by faradism.

June 4th. Reflexes normal. Dr. Eskridge exhibited tables of cutaneous sensibility and surface temperature of various parts of the body. The axillary temperature varied from 98.6° to 99.1° .

The question of diagnosis was one surrounded with some difficulties. Has not the case been one of general neuritis following inflammatory spinal trouble and improvement?

In favor of general neuralgia were the following reasons:

First. It is a disease which has extended over a period of more than two years, made up of pain lasting from two to six months in a man whose condition and general appearance to-day seemed to be as good as they were after the first attack in the year 1881.

Second. That several times, by firm pressure over the great sciatic nerve as it emerges from the pelvis, he had succeeded in relieving pain in the foot and leg.

Third. That in inflammatory condition of the cord of so long duration, reaction of degeneration and other trophic disorders would probably be found, and improvement would be slower if it occurred at all.

Fourth. That the left leg and right fifth cranial nerve were severely affected, while the left side of the face entirely, and the right leg almost entirely, escaped.

Fifth. That pain was often shooting or steady in character, differing from the dull pain of neuritis.

Syphilis was eliminated not only by the history of the case, but by treatment.

Remarks on Dr. Eskridge's Paper.

Dr. WEBBER, of Boston, said that in the report of the interesting case by Dr. Eskridge the fact that electrical reaction of muscles was not disturbed would militate

against its being a case of general neuritis or polio-myelitis. If neuritis, it must have been an inflammation of a sensory nerve. The case as it is reported is obscure, and he would not undertake to add any thing to what had been said in regard to its essential nature.

The President asked if the temperature at any time was above the normal.

Dr. ESKRIDGE replied that we did not really know what the normal temperature of the legs is. The temperature differed very much at different times, as much as a degree and a half between the healthy and the affected leg. The temperatures as recorded on the charts presented were taken from various parts of the body, and also in the rectum and axilla, and in the latter region it was raised from a half to one degree and a half.

Dr. LEONARD WEBER, of New York, regarded this case as one of spinal lepto-meningitis, and within the last two months he had observed two similar cases, although not so severe as the one reported, but in their general features very much like Dr. Eskridge's case.

The first concerned a man fifty-five years of age, who during the last five or six years has been more or less neurasthenic, and who, after the exertion of a comparatively long walk for him, developed nearly all the symptoms described, in the paper, to which the term general neuralgia had been applied: pains along the brachial plexus, the sciatic nerves; and on examining the spine there was considerable sensitiveness on the spinous processes of the dorsal vertebræ, and Dr. Weber was able to exclude, as in the case reported, with certainty, polio-myelitis and also myelitis. He had no reason to regard it other than a case of spinal lepto-meningitis. Erb and Voigt had published a large number of these cases, all of which were very much alike—subacute in character, with a tendency to become chronic; and Dr. Weber regarded his case as one belonging to that class, treated it as such, and had the satisfaction of seeing the patient completely cured within two weeks. The treatment consisted in the use of dry cups along the spine, the internal administration of ergot and bromide of potassium.

The President asked Dr. Weber if there was any elevation of the temperature in either of the cases to which he referred, and also whether there were any post-mortems in the cases reported by Erb and others.

Dr. WEBER replied that in Voigt's cases no post-mortem examinations were reported, but some autopsies had been made, and he thought that in Professor Erb's cases the same results had been given.

With reference to his own cases, the temperature in the axilla was a half degree above the normal, and, besides, the attending physician said that there was fever at the outset of the case; exactly how much that meant he was unable to say, because no thermometric record was kept. Of the eighteen cases which had been reported, all were subacute at the outset with but little elevation of the temperature, and all ran a chronic course, recovery taking place only in the course of months, sometimes even years, and under the use of such means as dry cups, thermal baths, galvanism, together with such general treatment as each case might require.

Dr. ESKRIDGE, in closing the discussion, said that he was not prepared to accept the view which had been expressed by Dr. Weber until more post-mortems had been obtained, which would throw light upon those cases which apparently get well. He thought that if meningitis were present in his case the passage of the electrical current would give rise to pain, but it did not do so. Since the writing of his paper a few additional signs had developed: First, over the surface of the cutaneous nerves in the arms and body and on the right side of his face boils had appeared, some as large as a hickory nut and exceedingly painful; and, secondly, he is suffering at the present time from severe occygodynia. At the present time there is no pain at all over the back, and he was inclined to think that if leptomeningitis existed the patient would suffer from more or less pain.

Dr. CHARLES K. MILLS, of Philadelphia, read a paper on "Locomotor ataxia terminating as general paralysis of the insane."

Dr. Mills said that the relation between locomotor ataxia and general paralysis of the insane had been a problem of interest to neurologists and alienists since the investigations of Westphal in 1863.

He related the following case :

P—, æt. forty-seven, at the time of coming under observation, was a man of good constitution, noted for his strength and endurance, but for three years he had not been well, during most of which period he had been treated by different physicians for "rheumatism." He was addicted to venereal excesses, and used and occasionally abused alcohol. Many years before he had had a chancre, but had not subsequently had any of the evidences of secondary or tertiary syphilis. He had first suffered from darting or shooting pains in his feet and legs ; soon he experienced sensations of numbness and tingling in his feet, and later in the little and ring fingers of the left hand. For a short time he was troubled with double vision, and his sight had diminished a little in acuteness.

The results of an examination made during the first week he was under observation, were as follows : no paralysis was made out ; galvanic and faradic irritability were well preserved. He could not walk well after dark. He swayed and tottered on trying to stand with his heels together, or with his eyes shut ; and he could barely manage to stagger a few steps with his eyes closed. He complained of the numbness and tingling in his feet, which has already been referred to ; and the paroxysms of sharp, sudden pains in the limbs had become more frequent. He was awkward with his hands in dressing. Occasionally a disagreeable, vaporous sensation would begin in the fingers and creep up the arms and thence spread over the body.

A peculiar sense of constriction on drawing in the lower part of abdomen had annoyed him for several months. Sexual desire had diminished. Within four weeks he had lost seventeen pounds in weight.

He suffered from attacks of sleeplessness and from mental anxiety in regard to his physical condition ; but he had no symptoms of aberration of mind, he had no delusions, and was fully able to attend to his business, which required a large amount of physical and mental exertion.

Under the use of nitrate of silver, galvanization of the spine, and faradization of the extremities, he improved remarkably ; but

after remaining better for a few months, however, he again relapsed; and now in spite of all treatment, including medicines, electricity, rest, and discontinuance of business for a time, he got steadily worse. Occasionally, however, he would temporarily improve. The anæsthesia of his feet and hands deepened; the staggering gait returned and grew worse; every two or three weeks he would have frightful attacks of lancinating pains.

Decided mental symptoms first began to make their appearance two years after first coming under treatment. He spent his money very freely upon others as well as upon himself. His friends observed that his ideas were becoming queer and lofty; but the delirium of grandeur did not develop thoroughly, until nearly a year later, when he began to talk and act in the most preposterous manner. About the same time a peculiar stagger in his speech, a slight twisting of the mouth to one side, and some tremor of the tongue and lips, became noticeable when he talked.

On several occasions at this stage he had attacks of hæmoptysis, and he was troubled with a cough, and now and then with night-sweats. He lost weight steadily.

Nearly three years after the notes first made by Dr. Mills as to his spinal symptoms, and almost six years after the development of ataxic pains, he was sent to the insane department of the Pennsylvania Hospital, where Dr. Mills occasionally visited him.

His delusions became of the wildest character; he became irritable and hard to manage. Anæsthesia, tremor of tongue and lips, etc., increased. On two occasions he had slight apoplectic-form attacks, one accompanied by a slight spasm.

Later, he was removed to the State Hospital for the Insane, at Danville, Pennsylvania, where he remained until his death, which occurred five years and four months after first coming under the care of Dr. Mills, and about eight years after he was first affected with ataxic pains.

A post-mortem examination of the brain and spinal cord was made. The pia mater over both cerebral hemispheres, particularly in the postero-frontal and parieto-temporal regions, was opaque, congested, and adherent at points; decortication being marked. Convolutions were atrophied. The pia mater of the cerebellum, especially over the superior vermiform process, was deeply congested and adherent. The pia mater of the spinal cord was thickened; and the cord presented an irregular shrunken appearance.

Microscopical examination showed marked sclerosis of the pos-

terior columns of the spinal cord throughout its whole extent, and that inflammation and thickening of the pia mater were also present everywhere. The sclerosis was most pronounced in the lumbar region, decreasing in intensity as the cord was ascended ; but was well marked throughout both in the columns of Goll and in the posterior root-zones. The medulla oblongata on one side was much sclerosed, and slightly so on the other side. Sclerosis was also present in the pons, crura, optic thalami, and convolutions examined, and in the cerebellum.

The pathological appearances shown by the microscope correspond closely to those mentioned by Westphal as occurring in the spinal cord in dementia paralytica. The first of the two groups presents clinically and anatomically the symptoms of tabes dorsalis, or gray degeneration of the posterior columns. On making a transverse section of the hardened cord, the posterior columns show few or no sections of nerve-fibres, and their place is taken by a connective-tissue substance. In the cervical region Goll's cuneiform columns are especially affected ; in the dorsal and lumbar regions, however, the entire area of the posterior columns is involved. In fresh preparations numerous fat-cells and corpora amylacea are found. This change can be followed upward only to the beginning of the fourth ventricle.

In this case the spinal symptoms were the first to appear. Three years before coming under the care of Dr. Mills he began to suffer with the lancinating pains of posterior sclerosis, although when first seen by him, and until he improved under treatment, he suffered at times from mental anxiety and sleeplessness, apparently the result of the pain and other distressing symptoms of the ataxia ; no typical mental symptoms appeared until more than two years after coming under Dr. Mills' care, and more than five years after the appearance of the first symptoms of spinal trouble.

Dr. Mills referred to the views of various authorities with reference to the relation of locomotor ataxia and general paralysis of the insane.

According to Westphal, with whom Hammond agrees, no direct relation exists between the morbid process in the cord in posterior spinal sclerosis and that in the brain in general paralysis of the insane. According to these authorities,

neither disease is secondary to the other, they simply co-exist as the expression of an excessive proclivity to diseases of the nervous system, just as any other two diseases may be present, one in the brain and the other in the cord, without their being any interdependence between them. Locomotor ataxia is by no means uncommon in patients affected with other forms of insanity (Hammond: "Treatise on Diseases of the Nervous System," sixth edition, p. 611). Hamilton (*New York Medical Record*, July 29, 1876,) discusses the relation of these two affections. Leidesdorf has related one case in which general paralysis was preceded by spinal symptoms.

Calmiel says that in many cases the changes proceed from the cord upward, and Baillarger endorses his views. Charcot has proved very conclusively that disseminated sclerosis can exhibit all the symptoms of general paralysis of the insane. Obersteiner considers that mental symptoms are found in the greater proportion of cases of locomotor ataxia. Cases reported by Obersteiner, Hamilton, Plaxton, Mickle, and others, were also referred to by Dr. Mills.

Remarks on Dr. Mills' Paper.

Dr. G. M. HAMMOND, of New York, asked Dr. Mills if there was any interruption of the reflexes in his case.

Dr. MILLS said there was a diminution of reflexes.

Dr. J. C. SHAW had seen one case of locomotor ataxia followed by general paresis of the type of dementia, and the patient died in an epileptic convulsion. The autopsy was made by Dr. Birdsall, who also made a microscopical examination of the brain and spinal cord, and, as Dr. Birdsall was present, he would doubtless give to the Association the results of his examination.

Dr. W. R. BIRDSALL, of New York, said there were one or two interesting points in the specimen referred to by Dr. Shaw. The cord showed throughout its length degeneration of the posterior columns, from the lowest part of the lumbar enlargement, easily traced upward to the nuclear termination. The degeneration presented the appearance of ordinary cases of sclerosis of the posterior columns, in

which the columns of Goll were more prominently involved, especially in the upper portions; the columns of Burdach and Goll in the lower portions. In addition to this, particularly in the posterior half of a transverse section, a peripheral sclerosis, which might be termed a cortical sclerosis, was distinctly present, which he believed to be secondary to slight meningitis, that which he imagined existed in the case reported by Dr. Eskridge. He would ask Dr. Mills if, at the site of meningitis, there was a sclerosis extending to a slight depth into the cord.

Dr. MILLS replied that there was, and also that he regarded it as important in connection with this and similar cases.

Dr. BIRDSALL further remarked that this change was not so prominent in the anterior columns as about the lateral columns, and that it gradually diminished as the anterior columns were reached. The changes found were similar to the ordinary changes of sclerosis, but in the medulla oblongata and pons, particularly the sensory tract of the medulla, instead of what would be termed true sclerosis, there was an increased vascularity, the smaller vessels about the central nuclei were very markedly increased, and its vascularity was more marked as it extended upward into the brain. He should also say that the usual lesions found in general paresis were found in the cortex and ganglionic bodies, and in this particular case which he had examined, amyloid degeneration of the vessels was especially prominent. Increase in the lymphoid elements was quite marked, and also shrinking of the cells of the cortex; and besides, there was marked increase in the capillary vascularity, together with thickening of the walls of the vessels. As he remembered the written history, it was a case which came under observation after symptoms of both locomotor ataxia and general paresis were developed, and the diagnosis, with regard to both points, was well established.

The point concerning the extension of the sclerosis outside of the posterior columns into the lateral columns, and remaining limited to the periphery of the section, apparently

in connection with the brain, is exceedingly interesting, as one or two other cases of a similar character which he had examined, previously connected with general paresis, or at least with mental symptoms indicative of that condition or an approach to that condition, presented these same appearances. Dr. Birdsall, in connection with this special pathological change, referred to remarks made by Buzzard on this pathological lesion, to the effect that possibly cases of sclerosis of the posterior column originated in this manner; that is, originated in a meningitis, meningitis having subsided while the changes in the cord have become permanent. He simply wished to bring the point up without committing himself to Buzzard's view on the subject.

Dr. WEBER, of New York, said that he had seen two cases which came under this category, both of which were interesting. The first concerned a gentleman well known, a prominent merchant, who began to suffer from the characteristic lancinating pains of locomotor ataxia when forty-five years of age. These continued for ten years, and were associated with the characteristic features of locomotor ataxia, and from the tenth year of the disease he had been acquainted with the case, and had noticed that there was complete absence of patellar reflex, together with other symptoms, making the diagnosis of locomotor ataxia unquestionable, and there was also evidence that the posterior sclerosis was slowly ascending in spite of all treatment. Syphilis could be safely excluded from the history of the case. The patient finally became blind, showed all the symptoms of dementia syphilitica, and died completely demented. No autopsy was permitted. The second case occurred in a man fifty-five years of age, who died in the Bloomingdale Asylum. There was a syphilitic history. And in the second case also the spinal symptoms preceded the symptoms of peri-encephalitis for five years, but not so well marked as in the first case. Two years and a half ago the patient showed the first symptoms of delirium, and also symptoms of dementia paralytica, which gradually increased, and the patient died as already indicated. In the second case there was for a time the most remarkable amelioration of all the

symptoms under the influence of specific treatment. No autopsy could be obtained.

Dr. MILLS, in closing the discussion, said that he was very glad that Dr. Birdsall had called attention to the occurrence of meningitis in his case, and had also referred to it in a case which he had reported, and also had referred to the remarks of Dr. Buzzard upon this subject. He believed that he had much to learn about diseases of this kind, and he was strongly of the opinion that many of these cases began as perineuritic or meningeal. It is not at all improbable that the first morbid condition of posterior sclerosis is a low grade of chronic meningeal inflammation. He had seen one case in which it was observed thoroughly clinically, and also autopsically. He had seen a number of cases in which symptoms of locomotor ataxia and general paresis were combined, and it is well known that cases of this character sometimes begin with spinal symptoms which apparently progress into the mental condition. He had also seen two cases which began with cerebral expressions and subsequently developed spinal phenomena. He thought that there was an analogous condition pathologically in the cord and brain in this kind of cases. Locomotor ataxia is meningo-myelitis, using the term as we use the term meningocephalitis with reference to dementia paralytica, because he thought we should bear in mind the fact of the involvement of the brain in all of these cases. It makes the case more hopeful with regard to treatment, and explanation of the pains which occur so early, if we associate the meningeal element in their production. It had never been absolutely clear to him why it was that this peculiar condition of increase in the connective tissue with diminution of nerve-fibrils should cause early lancinating pains, but it is made much clearer on the supposition that meningitis of some kind, or surface irritation at least, was present, which gave rise to this symptom.

With reference to his own case, there was one weak spot; namely, the fact that the autopsy was not carried out into the peripheral domain for the purpose of determining definitely the condition of the sheath of the nerves and the

nerves themselves. He thought it was particularly true, in cases of syphilitic origin, that they are more likely to begin as a membranous disease along the cerebro-spinal axis proper. As he had already said a year ago, in a paper read before the Association upon an entirely different subject, he believed that syphilis of the spinal cord is primarily, as a rule, an affection of the membranes of the cord. So, also, possibly the first step in the cases under observation was a meningitis. At first he was impressed with the idea that there was a sclerotic process in the lower lumbar cord which gradually progressed until it reached the cerebral surface itself, but he had concluded finally that while there was an evidence of a general process in the cord, there was rather a development of the same process in the various portions of the cerebrum, and that it did not necessarily begin in the cord and ascend by an absolute progression upward.

Dr. W. J. MORTON, of New York, said, with reference to the extension of the disease from the periphery inward, he would like to mention a fact which came to his notice only day before yesterday. It was a case of probable beginning locomotor ataxia, associated with a distinct history of injury of the nerve. The patient, a man, was struck three years ago with a piece of glass which divided the ulnar nerve at the wrist, and several portions of the nerve were afterward removed. The patient is suffering from intense pain, ascending neuritis has been established, as evidenced by atrophy of the muscles and other phenomena, and he came to be treated for the neuralgia and atrophy. In the course of the examination of the case he mentioned the fact that he saw double, and subsequent ophthalmoscopic examination showed that there was actual atrophy of the optic nerve. Diplopia was well established. These points led Dr. Morton a step further, and he found that upon having the patient close his eyes there was a marked swaying of the body, and on attempting to walk there was ataxia, and the ataxia also affected the upper extremities. Further, that the patellar-tendon reflex was absolutely abolished. He did not make special examination with regard to anæsthesia; but with the disturbance of vision, the abolition of the tendon reflex, the

unsteadiness of gait, he believed that a certain form of locomotor ataxia was developed. He mentioned the facts in the case to corroborate the view which Dr. Mills had brought forward, that the disease may begin as a peripheral affection and extend inward.

Dr. WEBBER, of Boston, said he hoped Dr. Morton would examine the patient and determine that locomotor ataxia did not exist before the cut was received, for the mere fact of an unsteadiness, or even ataxic gait, was not sufficient to establish a diagnosis of locomotor ataxia, as it might be a symptom of other affections.

Dr. MORTON said that of course the objection offered by Dr. Webber was a valid one, but he presented the case as one at least suggestive that the injury received five years ago might have some relation to the symptoms of locomotor ataxia which had been subsequently observed.

Dr. PUTNAM, of Boston, said it was strange that the symptoms of locomotor ataxia were especially marked in the lower extremities and not in the upper extremities, while the cut was received in the arm.

Dr. MORTON said he simply presented the case for what it was worth.

Dr. MILLS said he would allude to a view which, perhaps, was fanciful, and which he did not wish to endorse, and that was with regard to the manner in which syphilis produces locomotor ataxia as explained by Granville, who claims that there in some way advances from the original irritative focus of the chancre a neurotic condition that extends to the spinal cord, and absolutely claims that he has made examinations which prove this. While he did not wish to endorse the theory advanced by Granville, of the extension of irritation from the initial lesion to the spinal membranes, he thought, however, from what we know concerning perineuritis and neuritis, the fact of spinal meningitis being a primary step should not be overlooked.

Dr. E. C. SPITZKA, of New York, then read a paper entitled, "Remarks on the alleged relation of speech disturbance and the patellar-tendon reflex in parietic dementia."

At the annual meeting in 1881, Dr. J. C. Shaw read a paper on the tendon reflex in general paresis, which contained the following conclusion: "The exaggerated reflex is closely associated with two prominent symptoms in this disease. Those cases in which there are marked difficulties of speech, hesitancy, stuttering, up to complete inability to speak,—not aphasia proper,—are the cases in which is always found, sooner or later, exaggerated tendon reflex, and it is in those patients who have the marked difficulty in speech and the exaggerated tendon reflex that we find almost invariably hemiparetic attacks, and comparatively rarely epileptiform attacks. There is, therefore, a direct connection between these difficulties in speech, the hemiparetic attacks, and the exaggerated tendon reflex, and this is susceptible of pathological demonstration, and will be the subject of a communication at some future time."

Certainly the suggestions which seemed to open up a prospect of establishing a physiological relation between the speech centers and the lumbar enlargement of the spinal cord would merit our serious attention if the proposition that such a relation exists were made but tentatively. It is stated, however, and very positively, that a direct relation between the disturbance of speech, the hemi-paretic attacks, and an exaggerated tendon reflex is susceptible of pathological demonstration, and the author cites a fair number of anatomical examinations (eighteen) made by himself in support of this association. Unfortunately, Dr. Shaw has adopted premises, in drawing his pathological conclusions, which cannot but have tinged his results with a gross source of error, for he has excluded altogether from consideration the pathological condition of the brain. But it so occurs that in paretic dementia we have, as a rule, a diffuse affection of the entire central nervous axis. In some cases the lesions seem to be concentrated and intensified in the cord; in others, in the cortex; and, as Dr. Spitzka had had occasion to observe in a series of fifteen autopsies, in not a small proportion in the brain isthmus. A speech disturbance may be due to a high cerebral lesion, and may then be permanent; it may, on the other hand, be

evanescent, and due to temporary vaso-motor causes. It may not differ in its mechanism, particularly when associated with hemiparetic attacks from speech disturbance following cerebral or meningeal hemorrhage. Speech disturbance may also frequently depend upon lesions in the medulla oblongata. Here, then, are a number of conditions which may in themselves be associated with changes in the tendon reflex. The proof in favor of such a combination as that of the speech function with functions of the spinal cord must be a hundred-fold more overwhelming than that required to establish the relation of a given cortical area to the cortex, or of a special spinal segment to a spinal function. In the latter cases the observations, even if few, are satisfactory to scientists because they harmonize with the presumptions of science. In the former case the alleged relation would conflict with every presumption of science, or rather, the presumption of science is that there are few things in neurology as remote from each other as the tendon reflex and the speech function, unless it be the filum terminale and the olfactory bulb. Dr. Spitzka reported briefly eighteen cases from his private practice, arranged in such a way as to indicate the presence, degree, and character of the speech symptoms, the nature of the initial symptoms, an important factor omitted to be noticed by the proponent of the new theory in the condition of the tendon reflex. In none of his cases was an autopsy made. In conclusion, he stated that he believed that before a relation could be established between the tendon reflex and speech disturbance it would be necessary to have a much larger number of cases than had yet been reported.

Remarks on Dr. Spitzka's Paper.

Dr. J. C. SHAW, of Brooklyn, said he intended, in his paper, to consider the tendon reflex in general paresis as exaggerated, normal, and absent; that he had observed and examined seventy cases, that in twenty-two of these cases he found the tendon reflex exaggerated, etc.; and that it appeared to him there was some relation between these symptoms. He simply made it as a suggestion at the time

he read his paper, and put it forward as a clinical observation. Of course he had not been able to prove it by pathological conditions. At that time he had three brains which he proposed to examine, but unfortunately they became destroyed before they could be submitted to microscopical examination. Since that time he had not seen so many cases as previously. He never pretended to make any such connection between the spinal cord and the speech centres as Dr. Spitzka claimed that he had intended to do.

Dr. PUTNAM would ask a question. Dr. Spitzka had alluded to troubles of speech being due to difficulties in the medulla oblongata, and he would like to ask whether any one has noticed something closely allied to aphasia, due to lesions of the medulla. It at first occurred to him to observe a case of this character in connection, probably, with an aneurism of the vertebral artery, in which there was disturbance of speech something closely like aphasia. He had taken some interest in the subject, and on looking up the matter found that in quite a large number of cases reported by Nothnagel two were mentioned of a similar kind. The fact was merely mentioned by that author, and no special importance seemed to be attached to it.

Dr. SPITZKA said he was present at the time that Dr. Shaw read his paper, and was particularly struck with the view advanced; and he also hesitated before preparing his own paper lest he might have been mistaken concerning the views advanced by the author. He, therefore, looked up the paper as it was published, and found the distinct statement that, "there is a direct connection between these difficulties in speech, the hemiparetic attacks, and the exaggerated tendon reflex, and this is susceptible of pathological demonstration, and will be the subject of a communication at some future time." He thought that these words were sufficient to free him from any suspicion of misrepresentation of the views advanced by Dr. Shaw.

With regard to the question asked by Dr. Putnam, a number of elaborate observations had been made which might answer it. Sclerosis has been found, consisting in a form of crude connective tissue, sufficient even to interrupt

the action of nerve-roots. He could show a number of sections made from the medulla oblongata in which the root was interrupted entirely by a sclerotic patch involving both the hypo-glossal roots and also the origin of the pneumogastric. This patient lost speech entirely, and there were also trophic disturbances which could be referred to implication of the vagus.

The Association then adjourned to meet on Thursday, at 2:30 P.M.

Thursday, second day, afternoon session.

The Association was called to order at 2:30 P.M., by Dr. W. J. Morton, of New York, Vice-President.

Present—Drs. Jewell, Miles, Edes, Morton, Shaw, Sinkler, Mills, Weber, Eskridge, Parsons, Webber, Putnam, Ott, Amidon, Walton, W. A. Hammond, Gibney, Van Bibber, Kinnicutt, Dana, G. M. Hammond.

On motion by Dr. MILES, of Baltimore, the reading of the minutes was dispensed with.

The Secretary reported that the Council had met, and voted favorably upon the thesis presented by Dr. Ralph L. Parsons, of Sing Sing, New York, and recommended his election to membership.

The Vice-President appointed Dr. Ott to act as teller, and Dr. Parsons was unanimously elected a member.

The President, Dr. R. T. EDES, then read a paper on the "Excretion of the phosphites and phosphoric acid as connected with mental labor."

It seemed to the writer that there is a strong popular and scientific opinion that excretion of phosphoric acid is perceptibly or decidedly increased by mental labor; the most common form in which the statement is made being with regard to the increased elimination of phosphorus by clergymen on Mondays. He had not, however, been able to find the statement distinctly made by the original authority, Dr. Holmes. Whether or not it was based upon the statement of Golden-Bird he did not know; but if so, it does that eminent physiologist much injustice, as he does

not speak at all of the elimination of phosphoric acid, but of the deposit of earthy phosphates, and refers to Sunday service, not as intellectual labor, but as bodily exertion and anxiety. The technical difficulties in the way of such an inquiry, if the condition be at all a marked one, are almost none at all, since the determination of the presence of the phosphates with reasonable accuracy was a very simple process. But it is not so easy to make a distinction between mental labor and mental rest a very marked one. We have no accurate scale for mental labor corresponding to the foot or pound of mechanical work done, and it is very obvious that degrees of mental exertion are utterly without correspondence to the value of results obtained. The feeling of fatigue or consciousness of mental effort is, perhaps, the only means that we possess of estimating the intellectual labor. This, it is evident, may as well result from the adding up of a most meaningless column of figures as from the composition of a sonnet. A certain admixture of bodily and mental labor is also unavoidable if any thing like speaking or writing is attempted. There are but a few forms of bodily exercise which are unattended by some sort of intellectual activity, except the most monotonous and invariable employment, like work on a treadmill, sawing wood, etc., so that any observations must be made not only with reference to greater and less, and to the presence or absence of intellectual process; and the person experimented upon can tell better than any one else the degree. Dr. Edes then gave the results of observations made upon himself. The earlier observations embraced only the times of a lecture and a few hours afterward; but, as it might be objected that phosphoric acid forms during the greatest period of mental activity, and only slowly finds its way into the blood and out of the excretory organs, he made a few others in which the examination was made, not only for the evening, but for the succeeding night. In some of these the earthy phosphates were separately estimated, with the result of giving about the ordinary proportion, showing nothing of special interest. From his experiments it was seen that phosphites were dimin-

ished rather than increased during the process of mental action, as, for instance, during a lecture. Would it be fair from these figures to infer that no phosphorus is used up in the process of cerebration? Certainly not; but they are sufficient to show that the amount of phosphates derived from the metamorphosis of brain tissue in a condition of physiological activity is so small, in comparison with that from the system generally, that it has no perceptible effect upon the total of phosphates found in the urine. Is there any reason for the diminished secretion, as found in several of his experiments? He believed it might be easily found by noticing the lesser amount of urine secreted. In a condition of concentrated attention, it is in accordance with all our ideas of physiological activity that the brain should receive a larger supply of blood, and either directly from the withdrawal of this blood from the kidneys, or, as seems to him more probable, from the change in the blood tension and pressure in the kidneys, the amount of urine would consequently be diminished. He had noticed in other, but not recorded, occasions, that the flow of urine after a lecture, or other exercise demanding close attention, had been quite scanty.

Remarks on Dr. Edes' Paper.

Dr. PUTNAM asked how the results corresponded with those which had been found by other observers.

Dr. EDES replied that he had not been able to find any other definite observation; at all events, he had not been able to find any experiments made with this precise object in view.

Dr. MORTON said that the generally received opinion was that the phosphates were increased after mental activity, but if this is an error, as Dr. Edes' investigations seem to show, it would seem that some of the members might throw light upon the subject.

Dr. JEWELL, of Chicago, thought that he could shed little or no light upon the subject, and while he had not made investigations such as those which had been made by Professor Edes, yet he had looked at the matter in the light of common-sense, and had not been able to see why an organ

so small as the brain, even after a tolerably protracted mental effort, should so extraordinarily increase the compounds into which phosphorus enters as to make any great change of the amount found in the urine. The question had frequently been brought up to him in conversation, and his opinion, without any precise foundation for the statement, was that any one who would look at it in its broadest sense might easily see that no such thing would be found. It seemed to him almost absurd, and he was very glad to have this corroboration of his opinion found in the paper read by President Edes. He presumed that he had been asked the question more than a hundred times, mostly by clergymen, and thought that the statement made by Professor Edes, that it was at least a popular opinion, was well founded.

Dr. MILES, of Baltimore, asked if the phosphorus that is detected in the nerve structure is not found rather in the white substance of Schwann than in the protoplasm of the cells. Have we any evidence that there is phosphorus in the protoplasm of the cells? and if it does not exist there, would it not, therefore, be an argument *a priori*, that the phosphates should not be found in the urine as the result of increased mental activity.

Dr. OTT, of Easton, Pa., said that he had made some investigations with reference to phosphates in the urine, but not in the direction contemplated by Dr. Edes. His investigations had been made with reference to the effect produced by drugs, and he did not see how it was possible to arrive at any accurate results with reference to mental action unless similar precise conditions could be obtained. That is, in his experiments he knew precisely how much food was taken, and how much of any drug was administered, and his observations had been made particularly with reference to food and drugs with and without activity.

Dr. EDES remarked that of course such investigations as he had made did not disprove increased elimination of phosphorus from the brain. That might or might not be the case, but there must be a different analysis in such observations than is resorted to in the ordinary analysis of

the urine. All knew that the experiments were open to the criticism made by Dr. Ott, yet he had hoped to cover up, to a certain extent at least, that error; and the fact that in a number of instances the excretion has been less rather than more during mental labor was sufficient to make his case a tolerably strong one.

Dr. S. G. WEBBER, of Boston, then read a paper in which he reported "Cases of locomotor ataxia, interesting on account of unusual symptoms, and on account of marked remission in their course. [See p. 439.]

Remarks on Dr. Webber's Paper.

Dr. G. L. WALTON, of Boston, remarked, concerning deafness in locomotor ataxia, that the cases were extremely rare in which the auditory nerve is implicated, although the idea has been advanced that among the early symptoms of locomotor ataxia we should look for degeneration of the auditory nerve the same as we examine with reference to degeneration of the optic nerve. This view had been advanced by ———, and he had based his opinion upon a number of cases in which he had noticed deafness among the early symptoms. But G———, of Berlin, has strongly opposed that view, and has shown in several cases of middle-ear trouble in which deafness was supposed to be symptomatic of locomotor ataxia, that the disease came from inflammation of the middle ear of itself primarily. Dr. Walton had himself, with a view to studying the subject further, analyzed more than forty cases in which the proportion of deafness was, to be sure, very large; but in the majority of cases occurring in old women in Prof. Charcot's wards, catarrhal inflammation of the middle ear existed, or closure of the Eustachian tube, but in not a single instance could deafness be attributed to degeneration of the auditory nerve. In none of the cases was hearing lost, especially for high tones, as he examined the patients with special reference to this point. In all the cases the hearing was better through the bone on the side on which the hearing was worst, thus tending to show that deafness was due to external lesion rather than implication of the nerve. He

thought we should be very cautious in attributing deafness occurring in the course of nervous disease to that nervous affection. He thought, however, we were a little apt to say that a person is deaf without examining the ears sufficiently. At least, the statement is often made that, in these cases the membranes are normal, but this not sufficient, as it is well known there may be inflammation of the middle ear sufficient to cause marked deafness, and yet the drum membrane be apparently normal.

Dr. JEWELL, of Chicago, wished to make a statement with regard to the curability of locomotor ataxia and the means for securing that desired end. He had now had sufficient experience in that direction to entitle him at least to an opinion held with moderate firmness as to what is the proper course of treatment, and he believed that the most important of all measures to be resorted to in these cases, from beginning to end, is, as nearly as possible, absolute rest of the nervo-muscular apparatus. He was perfectly well aware that he was not stating any thing new, but he was not aware that many of those who treat nervous diseases had become so deeply conscious of the necessity of this measure as he had. It is common enough to prescribe rest, but not such as that to which he referred. Last autumn he had a list of three tolerably advanced cases of the disease; one was of several years' duration, and the patient was unable to leave his house. That patient was put to bed, his room was kept at an equable temperature, and he remained in bed nearly all the time during the entire winter. He never left his room, and when in bed he rested upon the side during the daytime, turning upon his face rather than upon his back when he changed position, and this plan of securing absolute rest was strenuously kept up for six months. At the present time this patient is tolerably advanced toward recovery if you call recovery disappearance of all marked symptoms characteristic of bad cases of locomotor ataxia. With this, as nearly as possible absolute rest, he had also carried out the most systematic massage; and besides, the surface was protected both day and night, so as to keep the temperature absolutely equable, and

thus protect the patient from those vascular perturbations to which such patients are especially liable. Dr. Jewell believed that this method, carried out strenuously and thoroughly with attention to temperature of the surface of the body, also of the room, was the most important single factor of which he had any knowledge in the treatment of this affection. It is not enough, simply to deliver one's self by stating to the patient, "you must rest yourself," for the entire purpose may be defeated through the carelessness of the patient or the patient's friends. A most remarkable case was one which was sent to him by Dr. J. C. Reeve, and in this instance the patient followed this course of treatment for eleven months, and a most astonishing improvement took place. It is true that this absolute rest and passive exercise were not all that was done, but this was the principal line of treatment. The iodide of potassium was also used freely with seances of interruption in the administration of the drug, and some other agents were employed, but the rest and the passive exercise were the important measures. The essential features of the plan were: absolute rest, as nearly as possible; a mild temperature, with the patient at a moderate elevation above the sea-level, say four to five thousand feet; and a thoroughly regulated temperature of the surface of the body.

Dr. W. J. MORTON, of New York, wished to say a word concerning the curability of locomotor ataxia and its treatment. One of the most interesting features of Dr. Weber's report had been the favorable view which he had taken of the progress made in the treatment of this disease. Dr. Morton thought that if any member of this Association had, three or four years ago, advanced the proposition that locomotor ataxia, even in the præ-ataxic stages, could be cured, or even relieved for a length of time, his statement would have been met with a very great deal of scepticism. Only last year he reported two cases of undoubted locomotor ataxia, which he had so relieved that the patients had ceased to suffer from pain, and there was a tolerable amount of return of the tendon reflex, and there followed as soon as the reports were published, most disagreeable comments

by medical journals throughout the country, and the tenor of the entire discussion was, that locomotor ataxia is an incurable disease. Dr. Morton had always been of the opinion that, if locomotor ataxia could be discovered in its tolerably early stages, as the reports of Dr. Webber's cases showed, there is always opportunity for affording a considerable amount of relief. He had always treated them substantially in the way which Dr. Webber had suggested, and nearly always with nitrate of silver, galvanism to the spine, and more recently with hydro-therapy. He had not applied dry cups, nor did he believe that counter-irritation to the spine had ever been of any benefit whatever. He had been much interested in Dr. Jewell's remarks with regard to rest, and followed him up to a certain point with perfect agreement, but when he reached the point of employing massage, Dr. Morton was unable to see how Dr. Jewell was consistent with himself, for the manipulations incident to massage might carry internally a certain number of peripheral impressions, which were the very thing to be avoided. He would like to ask Dr. Jewell if he did not think possibly his theory would be more consistent if he would avoid every source of external impressions which could be communicated inwardly to the spinal cord through the joints, tendons, muscles, etc.

Dr. JEWELL regarded the question as quite a fair one, and thought that he might answer at once by saying yes. If the question is, whether rest alone is the chief condition of recovery, then the more complete the rest can be the more complete will be the cure. He did not, however, himself regard it as all important to stop the impressions from reaching the cord, but simply to stop active exercise, especially of the neuro-muscular apparatus, such as obtains when one is placed upon the feet and is endeavoring to maintain his balance. It is *that* form of activity in the spinal cord which seemed to him to be damaging in such cases; that is, voluntary if you please, or the automatic use of the nervo-muscular mechanism of the cord, not only the co-ordinating but the motor tract. Impressions will come from the skin by rubbing, it is true, but the passive exer-

cise was simply to keep the lymphatic channels and blood-vessels in good condition, and he advised it solely for this purpose, and if it is painful for the patient, one had better be cautious about continuing it. He had found these patients particularly sensitive in regard to physical reflexes; such, for example, as arise from contact with slight currents of cold air or slight changes in temperature, which may produce an aggravation of symptoms that would require days to recover from. Rest was not the only agent to be employed, but he thought it outranked every thing else, and that that plan or method of treatment which would give these parts the most perfect rest, and at the same time give the best circulation, will most facilitate recovery. If a more physiological analysis of the transmission of impressions, such as is produced in massage, should determine that irritation was caused, he would stop it. But he wished, in conclusion, to impress that if this plan of treatment was to be of any service at all it must be done *thoroughly*, and he would like to have the patients at as high an altitude as circumstances would permit; that is, in an atmosphere with a low barometric pressure.

Dr. W. A. HAMMOND, of New York, said that ever since Dr. Weir Mitchell insisted upon the advantages of rest in the treatment of locomotor ataxia, he had enforced it upon his patients as rigidly as possible. He was certain of its beneficial influence, and was able to bear testimony to the very valuable results to be obtained by resorting to it as an adjuvant, and perhaps as the chief treatment. He did not know of any thing so essential as rest, and this fact was impressed upon him very forcibly in one of his cases some seven or eight years ago. A man consulted him with locomotor ataxia, whom he advised to go to bed and remain there for at least six months. The case was a very typical one—all the essential symptoms, unnecessary to mention, being present. The patient said it was impossible for him to go to bed, and that if that was absolutely necessary he would be obliged to give up treatment. He accordingly left the office, and when he had reached the sidewalk he slipped, fell, and broke his thigh. Dr. Hammond said he never was

much of a believer in special Providence until that time. The patient was taken home, and for the fracture of the thigh he came under the care of an irregular practitioner, who kept him in bed for nearly a year, and at the end of that time it was found that he was entirely free from his ataxic symptoms, and he had, to his personal knowledge, remained well until the present day. That case made an impression upon him, and he believed that the good result was, so far as the ataxia was concerned, due entirely to the rest which incidentally followed fracture of the thigh. Since that time he had enforced rest as rigidly as possible. It seemed very strange, however, in view of the experience already derived with regard to the beneficial influence of rest in the treatment of locomotor ataxia, that Dr. Granville (?) produces instances of cure obtained with exactly the opposite line of treatment. He makes the patient stand up, balance himself, and practise co-ordination, and he produced numerous instances showing excellent results from this plan of treatment. Dr. Hammond had tried this in several cases, and it had been astonishing to him how much the patients improved. He was not quite sure that it was absolutely safe to rely upon either plan of treatment alone; either excessive co-ordination or excessive rest. He thought that one could take almost any case of locomotor ataxia, a case in which a patient could not stand steadily with the eyes closed and heels close together, and by constant practice he could, after the lapse of a very short time, be able to walk with his eyes closed and stand as well as anybody. That is, his co-ordinating power is capable of being educated up to a very great degree of efficiency.

Again, he had had some experience within the last two years with a plan of treatment by means of the faradic electrical brush. He had treated a great many cases with it, both in clinical and in private practice. He had never known it to do the slightest atom of good, except to relieve the electric lightning-like pains when applied at seances of five or six minutes about three times a week, with one pole along the sides of the spine, and the other pole placed somewhere else.

Again, he thought he could safely endorse what Dr. Weber had said with regard to the efficacy of the salts of silver. He had already published several cases in which nitrate of silver had been administered with decided efficacy, even to the extent of effecting a cure as far as observation had extended; but it is unsafe to assert a cure of locomotor ataxia until the patient has been under observation in a cured condition for several months at least. He had administered the nitrate of silver in doses of from one fourth to one half of a grain, increased gradually, reaching in the course of three or four months to half a grain three times a day. He thought there was one point especially necessary to be borne in mind, on account of the inconvenience which sometimes follows the use of this drug. He had never given it for more than *twenty* days in any one month. After giving it for twenty days stop for ten days, and in that manner his patients had taken it for two years in succession, and he had not yet seen a single instance in which the skin was blackened.

Latterly he had used the terchloride of gold with good results, and he thought that one patient was free from all symptoms; at all events, he had been under his charge for five years, and during the last two years he had been treated with gold, and had improved more under this plan of treatment than he had under the use of nitrate of silver, which was employed for about two years. He is now free from all ataxic symptoms of any kind whatever, except the tendon reflex.

He would like to know something more concerning the plan of treatment by forced co-ordination, and asked if any gentleman had tried Granville's method of treatment. Dr. Granville writes so decidedly that it seemed to Dr. Hammond that he could not make any very great mistake about it. In the cases in which Dr. Hammond had resorted to it, there had simply been an improvement in the ability of the patient to stand with his eyes shut.

Dr. WALTON said he feared he might have been misunderstood with reference to the symptom of deafness in connection with locomotor ataxia. He wished simply to be

understood that the cases in which deafness was present as a symptom of locomotor ataxia, were extremely rare, a fact to which Dr. Webber had already alluded.

Dr. WEBBER said that in looking up the literature of the subject, he could find only a very few cases reported in which impairment of hearing was put down as a symptom of locomotor ataxia, and the conclusion which he reached was that they were very rare.

He did not write this paper with reference to treatment, and what he had said concerning this part of the subject was rather incidental than otherwise. If he had intended to enter upon the subject of treatment of locomotor ataxia thoroughly, he should have impressed the necessity of rest, protecting the skin, etc., very much in the way in which Dr. Jewell had presented it. Dr. Jewell had spoken of rest as the chief element, but Dr. Webber said he perhaps should not put quite so much stress upon that as upon changes in temperature; and it might, perhaps, be somewhat doubtful as to whether, in Dr. Jewell's plan of treatment, even the care taken to prevent the patient from being exposed to change of temperature had not contributed as much toward the cure as the enforced rest, perhaps more so. In the cases which he had reported, the patients, with a single exception, were kept in bed. In that instance the man was sent to California, particularly in order that he might be protected from changes in temperature and the patient thought that the care exercised with regard to exposure to alternating heat and cold was of the very greatest benefit to him. Dr. Webber said he did not know as he should agree with Dr. Jewell, that the patients should always be confined to the bed. With regard to patients practising co-ordination, he thought it should be borne in mind that inco-ordination is only one symptom of the disease, that this may be present in other conditions, and that the symptoms which are seen earliest concern other functions of the body.

Dr. R. W. AMIDON presented a case of *tetanoid paraplegia* occurring in a child, the tetanoid symptoms being preceded by a train of symptoms indicating subacute hydrocephalus.

He made the query whether the central trouble could

not, by causing descending changes in the cord, account for the tetanoid symptoms, the etiology in most cases being obscure.

Dr. Amidon also presented two anomalous cases of *Parkinson's Disease*, the peculiarity consisting in entire absence of tremor, every other symptom of paralysis agitans being present.

Remarks on Dr. Amidon's Cases.

Dr. W. J. MORTON, of New York, would like to place on record an observation which he had made by cutting down upon the sciatic nerve with a view to stretching it, and he found it in an undoubted condition of sclerosis. The nerve was hard, solid, and resembled in feel a piece of gutta-percha, so that, so far as one observation went, it was an absolute fact that the disease, if not of peripheral origin, involved peripheral nerves in certain instances. Curiously enough, the same observation was made by Parkinson when he had described the disease, but his observation had been disputed ever since, and Dr. Morton did not know of any actual observations made upon the nerve which corroborated Parkinson's views, except the one in which he cut down upon the sciatic nerve with a view to stretching. He wished simply to call attention to the fact, and to suggest that true paralysis agitans may be of peripheral origin.

Dr. C. L. DANA, of New York: Dr. Morton refers to the condition of the peripheral nerve, which reminded him of a case of paralysis agitans recently reported, in which the brachial plexus, or rather the three plexuses of the arm, were cut down upon with a view to stretching the nerves, and it was said that the nerves were in a perfectly healthy condition. Dr. Morton's case, therefore, seemed to have been an exceptional one. So far as literature goes, there is no record of changes in the peripheral nerves, as a rule, and if such changes are found they must be rare exceptions, although several observers do make record of some changes in the voluntary motor tract. The entire history of the disease seems to show that it is of central origin, and Dr. Dana could but regard the change in the

condition of the nerve in Dr. Morton's case as an exceptional one, although it was interesting, and possibly might throw some light upon the phenomena of the affection. In cases which he recently saw reported, stretching of the nerves was of no benefit.

Dr. MORTON said he performed stretching of the nerves for paralysis agitans, and some benefit followed, but there was nothing like a cure. Nerve-stretching, however, did more than any thing else usually does. With regard to the criticism offered by Dr. Dana, concerning the exceptional character of his case, he thought that if more nerves were cut down upon, more instances would be found in which sclerosis had taken place, and again, that records of examinations of peripheral nerves in this disease were exceedingly rare.

Dr. PUTNAM, of Boston, referred to a case reported by Westphal, who stretched the nerve with good effect. He would like to ask if any of the gentlemen had found any difficulty in making the differential diagnosis between simple multiple sclerosis and paralysis agitans. It had seemed to him that the cases which he had met with, particularly in the earlier periods, were difficult to distinguish from each other, where either the trembling is not distinctly characteristic of the one or of the other. Certainly in neither case is tremor of a distinct kind, and the fixed look and the fixed carriage of the head were distinctly met with in cases of sclerosis involving the different portions of the cord and brain.

Dr. AMIDON said that in both of his cases the etiology seemed to be the same; that is, intense grief, which of course had been recognized as one of the most common causes of paralysis agitans.

With regard to Dr. Putnam's question of differential diagnosis between paralysis agitans and multiple sclerosis, it might be difficult, but he thought it would be remarkable, to see a case of multiple sclerosis without trouble in the optic nerve, or the presence of nystagmus.

Dr. GIBNEY presented a patient illustrating progressive muscular atrophy with marked fibrillary twitchings. He

also presented a patient with fibrillary twitchings following a gunshot wound.

John D——, aged thirty-two, a cook by trade, presented himself for treatment April 2, 1883, giving the following history, which was necessarily short owing to the patient speaking no language but the Italian.

He gave no family history of any importance ; never had rheumatism, and was always healthy and temperate up to the onset of the present disease, except that he says he had syphilis and a sore on the penis in 1872, and speaks of having an eruption afterward.

Two years ago he first noticed a twitching, which, he says, he observed in the muscles of the left half of the body.

One year ago it extended to the right side of the body also.

Six months ago he first observed weakness in the left hand, and he became aware of the fact that it was increasingly growing thin.

At present date the left limbs, upper and lower, are considerably atrophied, especially marked in the hand, the interossei, thenar and hypothenar eminences, and its grasp is decidedly weaker than its fellow.

The muscles about the scapula and back are greatly atrophied.

There are fibrillary twitchings in all the muscles, seeming about equal in degree on the two sides. They are best marked in the pectoral muscles and muscles of the back. No twitching is observed in the muscles of the neck or face.

His general health is fair, appetite not good, bowels regular, etc.

The bladder has never been affected. He complains of tiring easily on exertion, and has noticed within the last few weeks that his back was weak when stooping.

The tendon reflexes are normal. There is no disturbance of sensation, and the special senses are normal.

The electrical reactions show a response to faradism in all of the muscles tested. It is somewhat weak in the muscles of the thenar and hypo-thenar eminences of the left side. In the arms they seem slightly exaggerated, as the muscles respond to a weaker current than is usual, and there is no difference between the reactions of the two sides.

There is response to galvanism according to the normal formula CCC > ACC.

The reactions of the muscles of the lower extremities seem to be less marked to both currents than in the upper.

[April 18th there was apparent progress of the atrophy, and the patient was ordered potassium iodide, grs. x, *t. i. d.*, and is taking it at the present time.]

Dr. MORTON then read a paper on, and exhibited an apparatus for, the treatment of "Writer's cramp."

Among the non-fatal diseases of the nervous system there is none, probably, less curable or more disastrous to the patient's occupation, than is writer's cramp. He had obtained better and more lasting results by the method of stretching the muscles affected by the cramps than by any form of electricity. While waiting for more cases on whom to repeat this method of stretching the muscles, Dr. Morton came across a detailed account of the treatment of writer's cramp by the method of Wolff; that is, personal treatment by means of active and passive gymnastics of the hands and arms, massage, friction, and systematic efforts at writing. Wolff's treatment requires about two weeks, but there can be no doubt that he effected a great many remarkable cures. It would be recalled, however, that Wolff's method has met with but little success when carried out by others. Dr. Morton's own belief, based on an experience of two cases of stretching, before Wolff's method was brought forward, is that the sole efficacy of the treatment lies in the stretching of the affected muscles, and that the benefit obtained, though striking, is not permanent, any more than it is in the contractures due to central lesions. Reference was then made to the method of treatment devised by Nussbaum, of Munich, who utilizes the idea of bringing the extensors into play in the act of writing, and thus resting the flexors and abductors of the thumb. Dr. Morton thought that the principle could be applied in a much more simple way than by means of Nussbaum's apparatus, and had therefore devised what was practically a thimble-pen; that is to say, it is a long thimble worn on the entire index finger. To the end of this thimble is attached a stub-pointed pen. The thimble should be of very light, elastic metal, split from end to end, should be made for the finger and clasp it entirely.

A very slight rubber elastic band, such as is commonly used on writing-desks, slipped over the thumb and fingers, serves to steadfast and offer a moderate amount of resistance to extension or abduction. The patient now writes by the usual shoulder movement of free writing, holding the hand flat upon the paper and sliding it along. The natural tendency of the finger and thumb is to extend rather than contract, as in holding the ordinary pen, and the result is that the patient with very little experience learns to write a good hand, and without the slightest experience of cramp or spasmodic movement.

Remarks on Dr. Morton's Paper.

Dr. PUTNAM, of Boston: Dr. Morton's idea is an excellent one, as is also the idea advanced by Nussbaum. Dr. Putnam thought that one objection to the theory of the apparatus is, that we cannot say that simply diverting the tension of the muscles is the essential thing. We cannot assume that the essential nature of the disease consists in an excessive tension or contraction in the muscles cramped, for the electrical excitability of the muscles is distinctly changed, especially in certain of the small muscles of the hand. He thought we should have to wait for some time before such a view could be safely accepted, and before it could be determined how far the shoulder muscles could be used persistently for writing; for, as a matter of fact, he fancied, there were but very few clerks who did not use the muscles of the hands more than the muscles of the shoulder. He also thought it would be a question whether the extensor muscles could be called upon to take this forced position without also suffering. Dr Putnam thought the method of — is most rational, as it aims to bring together all the parts concerned in the physiological action. The statement made by Stein, of Frankfort, was also interesting. He had described a large number of cases treated in this manner, and in a number of instances the results had been most satisfactory.

Dr. WEBBER, of Boston, had had the same experience as had Dr. Putnam with regard to the electrical reactions, ex-

cept that the electrical reaction had been both increased and diminished, but that it is comparatively rare, according to his experience, to find any diminution. There may be a difference in the reaction according to the different periods at which the patient may be seen. He had made a good many observations, and at one time started to write a paper on the subject, showing the irritability of the muscles as demonstrated by electrical reaction. Dr. Morton speaks of his patient as being cured or being benefited. Patients, perhaps, learn to write in that manner, but it seemed necessary to him, before speaking of being cured, first to learn what they can do in the old way; that is, whether the nerves and muscles have recovered their tone and power to again resume work. Until they have recovered power to resume work we can scarcely speak of their being cured, and the mechanical appliance merely aids the muscles which have been affected. Quite a sensible way to overcome this trouble is to have the patient learn to write with the left hand. There is no particular reason why the disease should recur in the opposite hand, although there is a certain predisposition for the patient to have the disease there; but that simply calls for greater caution in the use of the left hand. He had had patients with writer's cramp, who had learned to write with the left hand, and had written quite as well as they ever did with the right hand. An interesting point in writer's cramp is, that it is the smaller muscles of the hand which are first affected, and which give more or less trouble, but the pain is often experienced in the arm *above* the elbow. This fact is interesting as possibly showing that, in the long run, at least in many cases, Dr. Morton's plan of treatment would not be successful. For we must take into account that many times patients have transferred motion from the hand to the larger muscles, and in the course of time the larger muscles have suffered, and then they transfer the trouble to the shoulder, and finally the entire limb becomes disabled.

Dr. WALTON, of Boston, remarked that he did not think it was desirable to bring the flexors into play at all, and he believed that support of the entire hand was an advantage,

and that the apparatus which Dr. Morton had discarded possessed some marked advantages.

Dr. MORTON remarked that if it were a mere question of support it would be a good instrument ; but that if it is necessary to bring the extensors into play, it was not so well adapted for that purpose.

Dr. WALTON : It simply rests the flexors.

Dr. MORTON : I hope to go one point further, and to divert the innervation to the extensors.

Dr. DANA thought that on the whole Dr. Morton's instrument was an ingenious one, and might be applied in a manner not yet suggested ; that is, as a prophylactic measure. He thought the use of an instrument which could divert the muscles would be beneficial, and that this was not only rational, but in accordance with what we know of the physiology of this affection. Dr. Webber had spoken of the fact that the small muscles of the hand were affected first. This is what we should expect, as we know that the innervation of the smaller muscles which regulate the more complicated movements is that which is developed last, and therefore first affected naturally. With this instrument we turn attention to the movements of the larger muscles, and, while there is greater movement effected, it is of those muscles which are not so liable to diseases and degeneration.

Dr. WEBBER said that it might be a question whether these large muscles could take on the necessary movements for fine writing ; there may be some trouble in that direction, as the normal movements or the larger muscles are too extensive for that purpose.

Dr. MORTON said he would like Dr. Webber and Dr. Putnam to say how often they have found actual qualitative electrical changes, but more particularly how frequently have they noticed actual atrophy of the smaller muscles of the hand. In several cases which had come to his notice he had found actual atrophy with reaction of degeneration in the smaller muscles.

Dr. PUTNAM answered that he could not say precisely that there was any atrophy of the muscles ; they were simply softer than normal in one case, and in all three cases

which he had observed, there were distinct qualitative changes in faradic reaction.

Dr. WEBBER remarked that he did not remember to have seen atrophy at all; he had found that the muscles most used in writing, chiefly the interossei and the muscles which move the thumb, were more irritable, and that there was no qualitative or quantitative change, but simply increased electrical irritability.

A paper sent by Dr. E. C. SEGUIN, entitled, "The Insane of Spain, and their Asylums," was read by title.¹

The Association then adjourned to meet on Friday at 2:30 P.M.

Friday, third day, afternoon session.

The Association was called to order at 2:30 P.M. by the President.

Present—Drs. Edes, Miles, Morton, W. A. Hammond, G. M. Hammond, Parsons, Amidon, Walton, Putnam, Mills, Wilder, Birdsall, Dana.

Dr. W. A. HAMMOND nominated Dr. J. Leonard Corning, of New York, for membership. The nomination was seconded by Dr. W. J. Morton, of New York.

The Secretary presented to the Association Dr. J. J. Mason's book, entitled "The Central Nervous System of Reptiles." The book was accepted, with the thanks of the Association.

The Secretary also acknowledged the receipt of numerous copies of *The Alienist and Neurologist*, together with certain reprints, forwarded by Dr. C. H. Hughes, of St. Louis, to the President for gratuitous distribution.

Dr. W. G. HAMMOND, of New York, read a paper entitled "A case of locomotor ataxia cured."

The patient, who was exhibited before the Society, was a man thirty-nine years of age, married, and having two healthy children. Ten years before he contracted a lesion of the glans penis, but it is not known whether it was a chancre or chancroid. No secondary

¹ Published in full in JOURNAL.

symptoms followed. For several years past the patient had been a constant drinker, and two years ago suffered from an attack of delirium tremens. Previous to this event he had been troubled by sharp pains in the legs and some slight unsteadiness in walking, but attributed this to rheumatism. Following the attack of delirium tremens, the symptoms of ataxia were developed. He was unable to stand, either with his eyes closed or open, without support; the bladder was partially paralyzed; the walk was ataxic; anæsthesia was fully developed in the lower extremities; and the tendon-reflex was abolished. The arms were slightly involved, and the eyesight and memory were defective. Dr. James H. Anderson, who was the patient's physician, treated him with iodide of potash and bichloride of mercury, and referred him to Dr. Hammond, who applied galvanism, the faradic wire brush, and the actual cautery to the spine. This treatment was continued for a month with marked improvement. The patient could then walk alone with only a cane for support, and the eyesight and bladder were nearly normal. At the end of this time the electrical treatment was discontinued, as the patient left the city, but the internal medication, previously mentioned, was still persisted in. At the present time, after being under treatment about eighteen months, the patient is perfectly well. He can stand and walk with the eyes closed, and get on and off a car while it is in motion; the power of the bladder is restored; the anæsthesia has disappeared, and the tendon-reflex has returned.

Remarks on Dr. G. M. Hammond's Case.

Dr. F. T. MILES, of Baltimore, had seen one case with ataxic symptoms to an extravagant degree. The patient had an acute attack, as it might be called; all the symptoms appearing almost suddenly. He had lost the power of co-ordination to the extent of stumbling about the room, the tendon-reflex was entirely lost, and there was inability to stand with the eyes closed, etc. He had had specific trouble some time previously, and Dr. Miles, seeing him in consultation, advised a prompt and decided course of treatment by the use of mercury. The patient was a policeman, and was obliged to give up his position on the force. Some months afterward, Dr. Miles was asked to sign a petition to restore him to the force, and when he came to examine the

patient he found that all of his previous symptoms had been entirely relieved. It was an acute case, and one might be led to suppose that some specific trouble of a local nature occurring upon the membranous part of the cord, perhaps, had taken place, given rise to the symptoms, and had yielded to the prompt and decided treatment by mercury. He would not call it a case of locomotor ataxia, but probably some gummous formation had produced the inco-ordination of the limbs, which disappeared promptly under the anti-syphilitic treatment.

Dr. PUTNAM said that Dr. Hammond's case recalled to mind interesting cases in which a post-mortem had been made, and reported by Schulze, also by Erb, in which recovery from locomotor ataxia had taken place. At these autopsies the characteristic lesion of locomotor ataxia was found, but the clinical history showed that the tendon-reflex had returned.

Dr. F. T. MILES, of Baltimore, then reported a case illustrating "Nutritive alteration in the hand from pressure of the head of the dislocated humerus in the axilla."

The case was interesting for the following reasons: First, on account of the great deformity, the glossy skin, insensibility not only to touch but to heat and cold, loss of power in the muscles, with great deformity of the little and ring fingers; second, all these symptoms came very slowly as a result of pressure of the head of the humerus into the axillary space; third, that the pains were entirely limited to the shoulder; fourth, that the condition of the hand appeared so gradually that the patient knew but little concerning it.

Dr. MILES was impressed with the fact that the expression neuritis, called to mind a tender and swollen nerve, a great pain upon touch. He thought, however, that if we looked into the subject more carefully, there would be found various forms of neuritis capable of altering the function of a nerve without producing marked subjective phenomena; that neuritis may go on without absolute pain, and may produce alterations in tissue without giving

rise to many of those symptoms which we have usually expected should be present when a nerve is inflamed. He thought that many cases were regarded as having their origin in central trouble when there was alteration of tissue within the nerve itself.

Dr. BURT G. WILDER, of Ithaca, then read a brief paper on "The brain of a cat lacking the callosum."

Although there have been recorded several cases of more or less nearly complete absence of the great cerebral commissure with human beings, the specimen exhibited (with photographs) seemed to be the only case of the kind among the lower mammalia, being the only case occurring in the anatomical laboratory of Cornell University among the several hundreds of cat's brains there examined. There was no trace of the callosum, nor of the fornix beyond the dorsal limits of the portæ (foramina Monroi); the præ-commissure and medi-commissure are larger than usual. Unfortunately, nothing whatever was known of the history or habits of the cat. Now that the unique specimen had been submitted to the Association, Professor Wilder will feel more free to dissect it.

Dr. W. J. MORTON asked what peculiarities in mental activity the human being would present under the same circumstances.

Dr. WILDER answered that that was a question which Dr. Morton, as a human neurologist, should be better able to answer than himself. There was one case at least on record, and the only peculiarity noticed in that patient was that he was exceedingly quarrelsome and dirty.

Dr. MILES, of Baltimore, said he had a specimen in his collection in which a mass, apparently malignant, occupied as far as possible only the situation of the corpus callosum, and the only symptom which the patient presented in that case was an exceeding slowness in reply to questions,—a marked torpidity. His intellect was not so much disturbed, but it took him about four times as long to answer a question as it did the ordinary healthy person.

Dr. WILDER then read another brief paper on "The

alleged homology of the carnivoral fissura cruciata with the primatial fissura centralis."

Referring to the assumption of T. Lauder Brunton (*Brain*, Jan., 1882): "That these fissures correspond," Prof. Wilder made the following suggestions:

1. Writers should specify whether by correspondence they mean *analogy* or *homology*, as a relation based upon the position of a fissure fixed its location among experimentally determined "motor areas," or a relation implying identity as determined by embryology and comparative anatomy.

2. The present disagreement of competent authorities respecting the homology of these two fissures should restrain both physiologists and zoölogists from assuming the correctness of any particular view; for example, the human centralis has been homologized with not only the cruciata but the superorbitalis, the coronalis, and the unciata, together with the coronalis (in connection with the last idea was shown a foetal human brain exhibiting the somewhat rare condition of an interruption of the centralis); the cruciate has been homologized with not only the centralis but with the first frontal, the calloso-marginalis, and the occipito-parietal; *i. e.*, the surest method of determining the true homology seems to be the one which is outlined in Wilder & Gage's "Anatomical Technology," to make careful and extended comparison between the brains, especially foetal specimens of man, monkeys, and the *lemurs* on the one hand, with those of cats, dogs, and seals on the other.

The lemurs are primates with some characters of the carnivora, while the seals, though carnivora, have the occipital lobe and the post-cornu of the proœlia (cornu posterius of the ventriculus lateralis.)

Remarks on Dr. Wilder's Paper.

Dr. W. R. BIRDSALL, of New York, would like, from the statement just made by Dr. Wilder, to hear his opinion as to whether we really can arrive at such conclusions as he had indicated. In other words, suppose the homology of the convolutions in different animals is established, can we

conclude that similar areas correspond physiologically. May not, in the development of certain classes of animals, development of function go in such a different manner that certain convolutions acquire physiological properties entirely different from what we would find in other animals, and still certain anatomical appearances remain the same. In comparing physiological experiments upon different classes of animals in cortical areas, he thought this possibility should be borne in mind. Within certain limits this must be the case, and perhaps this is the general view held.

Dr. WILDER said that Dr. Birdsall's remarks brought up the entire question as to the criteria or tests of homologies. Whatever results had been obtained by irritation of the cortical surface of the brain, were to a certain extent begging the question, because it was not the result of such processes as enabled us to trace the fibres of the nerve-substance, and it was therefore premature to form any positive opinion from the fact that certain phenomena corresponded to the irritation of certain areas on the surface of the brain in the dog and cat. In the second place, it would also be of great advantage could this be done, because we could give to these areas the same name. The special points which he wished to make in his paper was, that whatever results could be reached by physiologists, they should be held in abeyance, so far as saying that certain fields are analogous to corresponding areas in man, until we have a series of brains to determine what their homologies are.

Dr. W. A. HAMMOND, of New York, said the subject was so vast that we have not yet ever been able to determine the homology of individuals of even the same species. Take, for instance, the case in which a man is injured upon one side of the brain, and certain symptoms are developed. The same injury in another man's brain, and so far as can be ascertained, in a corresponding area, may be followed by an entirely different set of symptoms. To open the question of homology in different species would certainly lead to interminable discussion. At all events, the question propounded cannot be answered at any one session of such an Association as this.

Dr. MILLS, of Philadelphia, said he had seen several instances of incomplete central fissure in man, out of a very large number of observations. He would ask Dr. Wilder whether he had seen that very infrequent condition of incomplete union of the Sylvian fissure with the fissure of Rolando, of which a few instances had been reported, and of which he had seen one himself in man. He would also refer to the comparatively numerous cases of such union reported in the work of B——, which led Dr. Mills to think that that author's observations were not reliable in this respect. At all events, up to within one or two years, only five or six cases of this kind had been reported.

Dr. WILDER replied that he had not seen any such cases.

Dr. BIRDSALL continued that he did not wish to have it understood that his suggestion had any thing to do with the general work which Dr. Wilder has undertaken. It seemed to him that the question is extremely difficult, but that the only true basis is to establish homology between the different classes of animals with regard to fissures and convolutions, but, after all this has been done, can it be assumed that the same motor areas in one can guide us in the other?

Dr. W. J. MORTON, of New York, then read a paper on "The treatment of migraine," in which he stated that the object was not to add any thing in the way of a specific remedy, or other isolated therapeutic measure, but rather to inquire, on the basis of certain accepted and familiar facts, if the present disjointed assaults upon the disease may not be organized into a systematized method of treatment.

Dr. Morton thought that this could be accomplished on the vaso-motor theory of the disease. The intense pallor, the cord-like and throbbing temporal artery, the shrunken appearance of the eye, and the dilatation of the pupil, all on the affected or painful side of the head, favor the theory that the symptoms may be explained, at first suggested by DuBois Raymond, by the existence of a contraction of the muscular walls of the blood-vessels of the affected side.

Mollendorff, later, brought forward the opposite theory :

that the symptoms of ordinary migraine were due to "debility of the vaso-motor nerves governing the carotid arteries, whereby the artery is relaxed and an arterial fluxion to the cerebrum is established."

An instance of this type of the disease may be found in a case reported by Berger in 1874. This report leaves no doubt as to the clinical distinctness of the paralytic form of attack.

The views of DuBois Raymond and Mollendorff have been sustained by Eulenberg, Erb, and others.

In the vaso-motor theory, then, we find a definite working basis for the practical treatment of the disease; a basis on which clinical observation and experimental physiology are singularly in unison.

The diagnosis of the type, then, not the simple diagnosis of the disease itself, determines the treatment, often by diametrically opposed measures or remedies.

The rule is, that the primary condition, be it a spasm or paralysis, is a continuous one,—at least during the prodromatic stage, and during one third or one half of the attack. There is, therefore, little difficulty in deciding against which form we shall direct our treatment.

One common source of error is in mistaking, generally from the patient's account of it, the *secondary* redness that follows the spastic onset for the *primary* redness that initiates the paralytic onset of the attack.

The initial pallor or redness may be of short duration (five to fifteen minutes), and yet be followed by a long-continued headache (twenty-four hours).

Dr. Morton believed it would be generally found that the spastic type is, by far, more common than the paralytic.

The most reliable treatment for the spastic type is the administration of sixty grains of the bromide of *sodium* at the very outset, repeating in an hour and a half, if the attack does not cease. We had seldom failed to abort the attack in this way. The patient must then be put upon a course of the same remedy, taking fifteen grains, three times a day, for from three to six months, with cod-liver oil, iron (Blaud's pills), maltine, etc., according to indica-

tions. The exceptional cases which are not relieved by this plan of treatment—practically cured—are those confirmed instances of migraine existing generally from childhood. The *sodium* bromide, as compared with the *potassium* bromide, is comparatively innocuous.

A practical objection, frequently offered, is that "the bromide reduces the quantity of blood in the brain, and why, therefore, do you use it in the spastic type when an anæmia already exists?" The fact brought forward must be admitted, that under the influence of bromides, the quantity of blood circulating within the cranium, is greatly diminished.

Dr. Morton's answer to the objection was, that in this spastic type, paradoxical as it seemed, the bromide actually increased the amount of blood in the brain, over and above the previously existing ischæmic state due to spasm of the vessels. This it probably does by depressing the excitability of the irritated vaso-motor mechanism; the vessels relax, an equable circulation is established in place of the local ischæmia, supposed to be present at the bottom of the migraine.

Nitrite of amyl and glonoin (nitro-glycerine). The use of these remedies seems to be justified by clinical experience. The spastic attack of migraine has often been relieved by nitrite of amyl, yet, undoubtedly, the effect is transient. Nitro-glycerine, therefore, is preferable to nitrite of amyl, because its effects are more lasting. In some cases it is remarkably efficacious. Recent investigations seem to show that more even effects of the drug will be obtained when administered *after* than when given before meals. The dose may be gradually increased from *one drop* of a one-per-cent solution, three times daily, up to four to six drops, three times daily, particularly if taken *after* meals. It probably acts by subduing the irritability of the vaso-motor centres. The bromide may be given *before* and the nitro-glycerine *after* meals, in the same case, and not infrequently with decided advantage.

The angio-paralytic type. The vaso-motor centres are in a depressed state, and may, theoretically, be called into ac-

tivity by strychnia, given in increasing doses until full physiological effects are produced. But the chief remedy is ergot. Its action is to produce vaso-motor spasm. A large dose, either by the mouth or hypodermically, may abort the attack. The effect of such doses is sometimes remarkable. Subsequently the drug is to be used continuously. To these measures may be added the use of the actual cautery and electricity. By many, migraine is regarded as a peculiarly intractable disease. To Dr. Morton, however, the disease seemed to be one that is curable. It requires merely a clear diagnosis concerning its type, and a somewhat long-continued and carefully watched course of treatment.

Remarks on Dr. Morton's Paper.

Dr. W. A. HAMMOND, of New York, said there was one point to which Dr. Morton had not alluded with reference to diagnosis, and it was the difference of temperature which exists upon the two sides of the face ; that is, in the paralytic variety, the temperature of the external auditory canal is usually about two degrees higher than upon the opposite side, while in the spastic variety it is as much as that lower than normal. This is a simple means of determining what kind of migraine we have to deal with. It is unsafe to rely upon the dicta of the patient in this respect. A gentleman consulted him for migraine, and, from the symptoms which he gave, Dr. Hammond was satisfied that it was a case of the paralytic variety, and treated him accordingly, and to his great surprise he was made worse by every dose of medicine which he took. He then changed the treatment, gave the patient glonoin, and an attack of migraine had not been developed since. He administered one drop of a one-per-cent. solution three times a day. He would ask Dr. Morton how he would treat a case where the paralytic variety existed upon one side and the spastic variety upon the other side ? He had seen two such cases and had found them very troublesome, and he had not succeeded in curing them. Several such cases had been described.

Again, he thought Dr. Morton should have laid some stress on the use of strychnine in the paralytic variety, which

he thought was more valuable than ergot. It should be administered in gradually increasing doses, beginning with one fortieth of a grain, and carrying it up to one half a grain, three times a day.

Dr. Hammond also thought it true that while the spastic variety occurred much more frequently than the paralytic, the paralytic variety is met with in quite a large proportion of cases.

Dr. PUTNAM, of Boston, had seen two cases of severe headache not corresponding distinctly to the type of migraine, one being associated with chronic albuminuria, from which the patient suddenly died, and the other was associated with latent gout. In these cases large doses of the bromide were of decided efficacy in warding off the attacks, which were probably not due to the effect upon the blood-vessels, as he had repeatedly endeavored to determine the existence of vascular derangement.

Dr. J. LEONARD CORNING, of New York, on invitation, said that he had treated several cases of migraine, in some of which he had afforded relief, and in others he thought that he had done a great deal of harm. One special plan of treatment he had tried with a certain degree of efficacy; namely, compression of the carotids to diminish the supply of blood to the brain. He had carried out some ten or fifteen such experiments, and thought that in one or two instances he had obtained some good results. With regard to bromide of sodium and potassium, he thought the sodium was better borne than the potassium. With regard to physiological effects produced by the bromides, he thought that the theory that they produced anæmia of the brain had been absolutely established by the experiments performed by Dr. Hammond. He thought that the anæmia of the brain produced by the bromides continued so long as the physiological effects of the drug persisted.

Dr. WILDER remarked with regard to compression of the carotids, that he had tried it upon himself during one severe attack of hemicrania, so severe that he could not refrain from crying out on account of pain. He applied compression to the carotid upon one side, and it gave very marked relief.

Dr. W. A. HAMMOND said, then certainly you had the paralytic variety, according to Eulenberg's test, who states that compression of the carotids increased the severity of the spastic variety, whereas the paralytic variety is immediately benefited by it.

Dr. MILES, of Baltimore, referred to the fact that the two varieties might occur in the same patient upon the same side.

Dr. DANA, of New York, referred to the fact that sometimes we have symptoms attending disturbance of the optic nerve, of the fifth nerve, and, besides, cerebral symptoms, and also symptoms pointing to some disturbance of the vagus; and it seemed to him rather strange that a cut-and-dried treatment, based upon the spastic or paralytic condition of the arteries, should be the only one which should be prominently put forward. He had not been able to distinguish between the spastic and the paralytic forms in many cases. Possibly it was because he had not applied some of the tests referred to. He thought it a common experience that very often you do not get the typical contractions and dilatations of the blood-vessels, and it seemed to him that the vaso-motor system is not the sole point of attack, and might it not be that the pain is the cause of the vaso-motor disturbance as well as an effect? He had used cannabis indica with very good results, administered when the attack is coming on, in doses of one drop of the fluid extract every five minutes. Paullinia also had proved serviceable in his hands for warding off the attacks. Nitrite of sodium had also been said to produce similar effects, as does glonoin. He would like to know whether any of the members had used nitrite of sodium, for there was something the matter either with the salt or with the American constitution, according to his experience, as he had seen dangerous symptoms produced by twenty-grain doses, and also very disagreeable symptoms produced by five-grain doses.

Dr. W. A. HAMMOND said that he had administered the nitrite of soda in twenty grain doses in epilepsy, and it had seemed to be perfectly inert.

The President referred to a recent paper published, as he recollected, in the *Practitioner*, in which the writer spoke of

the impurity of the drug and the uncertainty of its effects.

Dr. MILLS, of Philadelphia, at the suggestion of Mitchell and Reichert, used nitrite of sodium in epilepsy, and in every case with bad results.

The President remarked that he had had the impression that the active principle in all three agents, the nitrate of amyl, the nitrite of sodium, and nitro-glycerine, was the nitrous acid.

Dr. PUTNAM, of Boston, said he should be inclined, on general principles, to agree with Dr. Dana, that too much stress had been laid on the vascular condition in migraine. We are all aware that changes in the vascular supply is a frequent condition in many neuralgias. In his own case the first sign was almost invariably pain, followed by changes in the size of the pupils. Sometimes these symptoms were accompanied by vomiting. He could not say that any signs absolutely distinctive of migraine existed as distinguishing it from the more superficial neuralgias of the fifth pair, yet no one thinks of ascribing as a cause of an ordinary headache the vascular condition as the point to be attacked in its treatment, nor did he see why it should be done with migraine. Certainly treatment with *cannabis indica* had proved successful in the hands of a number of persons.

Dr. MILLS, of Philadelphia, said with regard to the vascular condition, that he thought there was no doubt concerning the existence of the two varieties mentioned, but the condition producing migraine is something behind vaso-motor processes, and this, whatever it may be, will help to account for the success which Dr. Morton obtained in some cases with apparently different forms of treatment; bromide of sodium acting, as it has done, by relieving the irritability of the centres concerned in the spastic condition, and glonoin acting, perhaps, to produce the same effect in a different way. Perhaps hearing so much about spastic and paralytic conditions we may make a compound of them, but there is not necessarily any connection between them. Take, for example, a common illustration: a patient has been using nitrite of amyl, having a decided vaso-motor spasm, which condition is not accompanied by pain. However, that we

have the angio-spastic and the angio-paralytic varieties there is probably no doubt.

The President said he had had some experience in the use of two or three remedies in his own case, in which the pain, as a rule, originates on the right side, about the eyes, and after a time extends all through one side of the head, and he could testify to the great relief which might be obtained by the use of bromide of potassium. He had always used potassium, for the reason that it affected him favorably, and he therefore did not wish to change. With symptoms indicating the approach of an attack, he took a large dose on going to bed, and it usually warded off the attack, and he had also tried it in the daytime, and it had given him almost certain relief. He had taken as much as one hundred and twenty grains at a dose.

As to the theory of the two kinds of headache, he had not determined which in his own case existed. He could sympathize with Dr. Putnam and Dr. Dana in their view that the condition of the blood-vessels is a side phenomenon rather than the essential element, so far as pain is concerned. He had also seen illustrations of the fact mentioned by Dr. Mills; namely, a change of the kind of headache upon the same. Guarana owes its efficacy, perhaps, almost entirely to the caffein which it contains, and he had therefore administered caffein with great efficacy in many kinds of headache, and had seen it in some instances act as speedily as subcutaneous injections of morphine. In some of his cases it almost invariably gives relief for a few times, from three to six, or eight times, and afterward it fails altogether. But he should not think that the failure of a drug upon one occasion would be sufficient to warrant him in changing his diagnosis with regard to the form of headache which existed.

Dr. WILDER called attention to an observation upon himself. He had the toothache, and he noticed that the throbbing pain alternated with every beat of the heart; that is, every other beat of the heart caused exacerbation of the pain, and the pulsations were so marked that he could pick up the rhythm by the beats. This, so far as it went, indicated that there were two seats of the vaso-motor centres

capable of acting alternately. He would like to ask whether a like phenomenon had been observed by any of the gentlemen.

Dr. HAMMOND suggested that the pulsations of the heart were not of equal force, and that the alternate heart-beats only were sufficiently forcible to produce the pain.

Dr. MORTON said, with regard to temperature, that in his paper he called especial attention to it, and the same with regard to strychnine. With regard to the case mentioned by Dr. Hammond, the man who took glonoin, it was a surprising result, for the patient stated distinctly that it was the first time for three months that he had been free from pain.

Dr. Morton had not seen migraine of different types upon different sides of the head. Dr. Hammond had asked how he would treat such a case, and he would answer it by saying that in accordance with the doctrine that the descending galvanic current produced contraction of the blood-vessels and the ascending current dilatation, one current could be applied to one side of the head and the other current to the other side of the head. The effect of this, however, would be highly problematical.

With reference to nitrite of amyl, nitro-glycerine, and nitrite of sodium, he thought it was quite correct that the effects produced by these drugs were due to the nitrous acid, the only difference in the effects being due to the rapidity with which decomposition took place, and with which the nitrous acid is liberated. In nitrite of amyl decomposition takes place most rapidly, in nitro-glycerine next, and in the nitrite of potassium and nitrite of sodium it occurs later.

There seems to be a disposition to consider that the condition of the blood-vessels is not a fair guide to be followed in the treatment of the disease. His idea in writing his paper was to meet exactly that objection, for he believed that with such lack of certainty there was no end to experiments, and we should not be able to reach any definite results; whereas, if we adopted a definite plan of treatment, based upon a definite physiological condition, we can give a negative answer if not an affirmative one, and, after all, the vaso-

motor condition is one of the prominent features in the affection. He thought that if the gentlemen would take some trouble to examine the differences in temperature upon both sides of the face and head, the effect produced by pressure of the carotids, the condition of the eye with reference to the sensitiveness of the ball, that they would then easily make a differential diagnosis, and perhaps obtain better results. It seemed to him that the vascular condition was a far more decided guide than the simple symptom of pain.

Dr. W. R. BIRDSALL, of New York, read a paper entitled "Statistics relating to the association of syphilis with locomotor ataxia."

The material on which his own statistics are based consist of forty-two cases of locomotor ataxia, observed at Professor Seguin's clinic for nervous diseases at the College of Physicians and Surgeons, and in his services at Manhattan Hospital, New York; also in his own service at the latter institution. The number of cases reported does not represent the whole number seen at the above-named institution; the older cases having been excluded, and many later ones, from no mention being made of the presence or absence of syphilis, or on account of an otherwise imperfect history. In the forty-two cases there were but four with a previous history of syphilis (9.5 %).

The following table exhibits the reports of different observers.

	Number of Cases of Locomotor Ataxia.	History of Syphilis.	Per Cent. Syphilitic.
Birdsall	42	4	9.5 %
Rosenthal	105	18	12. "
Bernhardt	37	9	25. "
Remak	52	13	25. "
Westphal	75	24	33. "
Pucinelli	51	22	44. "
Gowers	33	23	70. "
Fournier	30	24	80. "
Erb	100	88	88. "
	525	225	43 %

The view that syphilis is a frequent etiological factor in locomotor ataxia gained support, not from the data of patho-

logical anatomy, or from therapeutical results, nor even from a comparison of the symptomatology of the two affections, but almost exclusively from statistical data, showing that locomotor ataxia has followed syphilis naturally; we must determine whether syphilis is in fact more frequently associated with locomotor ataxia than with all other diseases, under similar conditions, before attempting to show causes for a more intimate relationship.

Concerning the first point, the statistics of certain writers seem to decide this question, beyond doubt, affirmatively, while others point as strongly toward a denial. We have, in short, to deal with the dangers and difficulties of statistics. Among those applicable to the problem in question are, the difficulty of determining whether the patient ever had syphilis, and if he had, whether the early symptoms of locomotor ataxia may not have antedated the syphilitic infection; also the difficulty in excluding from true cases of systematic sclerosis of the posterior columns, cases of combined posterior and latent sclerosis, disseminated sclerosis, myelitis of limited extent, primary or secondary to tumors, meningitis, etc. Granted that these difficulties have been surmounted, which will depend largely on the care exercised by the observer, and perhaps, unintentionally, upon his preconceived ideas of the problem, still, such statistics must vary also with the character of the material under observation depending on variations in the value of such factors as nationality, social condition and morality, occupation, sex, age, etc., between different observers.

Again we have no standard as to the percentage of syphilis to all other diseases, which must also vary exceedingly under different conditions.

Erb has calculated that twenty-five per cent. represented the correct number in the material upon which his statistics were based.

The statistical method, although it ought not to be ignored, is thus seen to be unreliable, particularly when the number of cases observed is as small as we find it respecting locomotor ataxia. Certainly, no conclusions could be drawn with safety from any one of the small group of cases

of the different observers, and even the aggregate number is much too small as yet to lead us to conclude that the high percentage (43%) represents any approach to a constant one. We must wait for more cases before we can trust the slight corroborative evidence which the statistical method may be able to give for or against the different theories of the relation of syphilis to locomotor ataxia.

Dr. Birdsall also exhibited an electrode for making careful electrical tests, and also for therapeutical purposes.

Dr. Birdsall exhibited a new universal electrode handle and combined current-reverser and interrupter, which he has designed to avoid the inconvenience of using the pole-changer of the battery, or of moving the electrode when it is desired to make careful polar tests for diagnostic purposes, or reversals of the current for therapeutic effects.

Instruments of a similar character have been devised, but most of them are too clumsy for convenience, and there is danger with them of reversing the current when it is not desired. In this instrument the current is entirely under the control of one hand of the operator as regards the making, breaking, and reversal of the current, and he expects to be able to regulate the strength of the current as well by the addition of a rheostat which will not change the compact size and shape of the present instrument.

Another feature consists in its being a universal handle in which the screw has been dispensed with, and in which a slightly tapering cylinder fits into a corresponding tube on the different-sized electrodes, allowing them to be changed with great ease and rapidity. The latter are deeply grooved on the circumference to receive an ordinary gum-elastic band, which secures the cover of sponge, chamois, canton flannel, or absorbent cotton, so that they may be readily changed when soiled.

Remarks on Dr. Birdsall's Statistics concerning Syphilis and Locomotor Ataxia.

Dr. MILLS, of Philadelphia, thought it impossible to settle this question by statistics. On the other hand, he thought it was absurd to assert that locomotor ataxia is

always due to syphilis, as Erb had done. He felt sure that he had had a considerable number of cases of locomotor ataxia which were not due to syphilis.

The Association then adjourned, to meet at 8:30 P.M.

Third day, evening session.

The Association was called to order by the President.

Present—Drs. Weber, Walton, Amidon, Birdsall, Miles, Morton, Mills, Spitzka, Parsons, Wilder, Dana, Edes.

The Secretary announced a communication from Dr. Schmidt, of New Orleans, on "The pathological anatomy of the cerebro-spinal axis in a case of chronic myelitis of nineteen years' standing," accompanied by elegant lithographic engravings, and to be printed in Dr. Morton's JOURNAL. The communication was accepted.

The Secretary also reported that the application of Dr. Corning for membership must lie over until another year, for the reason that none of the members of the Council were present to take action upon the thesis.

Dr. C. L. DANA, of New York, then read a paper entitled "Note on the treatment of chorea by the sedative galvanization of the brain."

Remarks on Dr. Dana's Paper.

Dr. MILLS, of Philadelphia, said Dr. Dana had remarked that he believed there was chiefly a direct action upon the brain. While he agreed largely with Dr. Dana concerning the efficacy of galvanism, he hardly thought that Dr. Dana had logically explained himself with regard to the method of its action. For, his allusions to the common polar method, and then that the action was chiefly a direct one, were hardly consistent. There were many things which led him to think that the effect, so far as the cerebrum is concerned, is indirect, and a reflex one. With the method of using the foot electrode for a cathode, and the large anodal plate placed over the cranium, he could scarcely see how Dr. Dana would regard this as a direct method; for, as Dr. Mills

understood it, it is a question of direct transmission of the current through the brain, or a question of transmission by way of nerve-trunks, and so producing an action upon the brain. If we use a foot rheophore, and then have the other applied to the head, in what way is the circuit completed through the brain? It is much more reasonable that it is transmitted by way of the trigeminal fibres, perhaps, and thence there is radiation of impressions from that point which yields a certain effect; that is, there is a sort of extra polar diffusion of the current from the anode. In the common example of having the patient hold one electrode in one hand, or applying it to the spine, and the other to the lower jaw, you will produce almost instantly, at least at the making and breaking of the circuit, vertiginous effects, and this is a cerebral effect, and he did not see how it could be regarded as direct transmission, if he understood the matter as Dr. Dana had expressed it. Dr. Mills' own impression was that the current applied in these cases had a limited amount of efficacy, but that it was much more an inhibitory or a reflex effect which was brought about by the use of the current in this way.

Dr. WEBER, of New York, had made a large number of applications of galvanism to the brain in adults as well as in children, with well-working batteries, and he had found, at the utmost, that three elements were sufficient to produce effects which we wish, without the unpleasant effects; and for grown persons, from four to six, at the utmost eight elements, would be sufficient when the current was passed with the anode placed upon the forehead and the cathode to the neck, and this could usually be used without unpleasant symptoms. It had been his experience that but few elements were necessary to produce vertigo when the rheopores were applied to the temples, but more will be borne when applied to one side than the other, of the head. As to the effects produced by galvanization of the brain, there is a refreshing effect, particularly in his own case, in the early morning before breakfast. As far as the direct action is concerned, he agreed with Dr. Mills that the reflex is probably the one most important that we have to consider. In

neurasthenia, galvanization of the brain is almost always followed by pleasant results.

In regard to the second part of the paper, he had had some experience, and so far as the effects were concerned which he hoped to get from the application of electricity in cases of chorea minor, he had failed to see any. When he supposed that he had obtained effects it was when he had treated the disease at the same time with arsenic in gradually increasing doses. Therefore, he thought it would be necessary, before we could form any conclusion that galvanization of the brain will do any good at all, to have a large number of cases in which nothing else is used except electricity. When used in conjunction with arsenic he was of the opinion that it was the arsenic which produced the beneficial result.

Dr. W. R. BIRDSALL, of New York, thought it was unfortunate, in distinguishing the effects produced by the current upon the brain, that a better method of comparison is not used. The number of cells is referred to, a statement which gave us but little idea as to what the exact effect could have been. He regarded this as an exceedingly important point with regard to comparison, so far as the effects were concerned, in reporting cases, and in making comparisons as to parts under examination. With regard to the polar action of the current, it was exceedingly difficult to recognize the differences in polar action while we are using electricity upon the human body, where the resistance is so enormous. He could conceive that the effects which Dr. Dana described could be produced. Further, he thought that there was often an attempt to reduce the effects of electricity to definite laws when we are really not in a position to do so. He wished to speak merely on general principles. It is a complex question, and it is difficult to eliminate many points which had been raised this evening, such as the effects produced internally, and even the effect produced upon the imagination of the patient. Respecting the use of galvanism in chorea, he had had some experience, but it had been rather unsatisfactory, and of late, in hospital work, he had not used galvanism in its treatment, because such

very satisfactory results had been obtained from the use of arsenic in gradually increasing doses, associated with rest, that he preferred this method to all others which had been previously used.

Dr. BIRDSALL said he wished to correct what seemed to be a misconception. He did not refer to this matter with regard to the discussion in connection with Dr. Dana's observations, but in regard to the direct effects of the current, and stated that he thought he would have a better method of comparison by the use of such instruments of precision as a galvanometer, than by the simple statement that a certain number of cells were used. If we are to determine the physiological effects of the galvanic current we must have some guide as to its strength, and must know something as to the force of the cells. The fact that bad galvanometers existed is not an objection to the use of the instrument. He had special reference to experimental work in regard to the physiological effects of electricity; for the therapeutic effects, the sensation of the patient is a sufficient guide.

Dr. MORTON wished to add a single point. Comparison had been made between the direction and the polar method to the disadvantage of the direction method.

With these criticisms he agreed. But it was also to be recollected that, according to the recent investigations, even with the polar method, we had to deal with an *actual* and a *virtual* electrode.

Thus, a new element of doubt was thrown into the polar method itself.

Dr. DANA, in closing the discussion, said, with reference to Dr. Mills' criticism, which he thought was proper, that he did not go into the entire subject of the physiology of the action of the current very extensively, because his object was to present a summary upon which to base the rationale of his treatment. He did not exactly understand, however, the point of the objection raised by Dr. Mills. If we put the positive pole upon the head, and the negative pole upon the foot, it seemed to him that it is easier to suppose that the effects are produced directly,

than it is to suppose that they are produced by the irritation through the cutaneous nerves, and that the irritation is transmitted in that manner. That there is a current passing into the brain he thought had been definitely settled, as we know there is hardly any substance which opposes the passage of the electrical current. He therefore supposed that the current traversed to a great extent the subcutaneous tissues, and that a certain amount must have passed through the cerebral tissues. The dura mater and meninges being moist could not be looked upon as an obstacle to the passage of the electrical current. In fact, as Erb says, the great thing to prevent electricity entering the body is the skin, and nothing but the skin, and that if it can be gotten through the skin, it can be carried to different viscera. As regards the theory that internal influences are concerned in the diffusion of electrical currents, Dr. Dana regarded it as disproved that the phenomena of cerebral galvanization are produced by reflexes, as proved by a careful analysis made by Lowenfeld. In regard to the galvanometer he did not use it; he had used it in connection with the treatment of some of his cases, but he could not say that it gave him any indication except that the battery was in good working order. In regard to the efficacy of electricity in chorea, mentioned by Dr. Weber, he did not state how it was given, and Dr. Dana regarded the method as a very important factor in the treatment. With regard to the objection to the polar method, perhaps it was well founded, but Dr. Dana confessed that he could not say very much about it; still he thought that we cannot say positively, any of us; we have to determine whether there is any error in it by actual experiments.

Dr. BURT G. WILDER, of Ithaca, then read a paper on "The removal and preservation of the human brain."

Assuming the great value of an accurate knowledge of the gross structure of the human brain as a foundation for histological research and for comparative anatomy and psychology, Prof. Wilder urged that in all museums, and in the private collections of medical men, and especially

teachers, there should be preparations of brains removed without the risk of tearing delicate parts, and perfectly preserved.

For the sake of obtaining such brains, no time, labor, or expense should be spared, and the other parts of the head should be sacrificed if necessary. The present is a preliminary account of methods which are now employed in the anatomical laboratory of Cornell University; the primary object is the making of reliable macroscopic preparations, and it is not certain that the method of hardening will answer for histological purposes. The efficacy of the methods employed was attested by preparations of brains, adult, young, and foetal, entire and dissected or in sections.

The leading points were as follows: 1. The use of "side-cutting nippers" for the removal of the skull of young subjects. 2. The retention of the dura until the calva is removed. 3. With adults, the longitudinal hemisection of the calva, $1\frac{1}{2}$ cm. to the right of the meson, before the circular incision is quite completed. 4. The use of round-pointed "shoe knives," curved and straight, for the separation of the calva from the dura, the smaller half of the calva being removed first. 5. The constant support of the brain by means of strong brine during its extraction, hemisection (if this is done), and removal to alcohol. 6. For the special study of the form and the arrangement of the fissures, the partial hardening of the brain within the skull by the *continuous* injection of alcohol (increasing at intervals of two or three days from sixty to ninety-five per cent.) into the arteries, and the subsequent hemisection of the organ, each half being allowed to harden while immersed in alcohol, and resting with its meson on a glass plate. 7. For the special study of the cœlian (ventricular) connections and paretetes, the reduction of the brain to a flat-sided mass containing the desired regions, and the *continuous* injection of alcohol through the foramen infundibuli or any artificial orifice. 8. Keeping the brain while hardening as cool as possible without freezing. In conclusion Prof. Wilder desired to make public acknowledgment of his indebtedness to his colleague, Prof. S. H. Gage, not only for cordial and

efficient co-operation, but for special and valuable suggestions as to washing out the blood by injecting a ten-per-cent. solution of chloral hydrate, the employment of the curved blade in separating the dura, and the use of vaseline for anointing stoppers, corks, and rubber rings, so as to prevent the escape of alcohol.

Dr. MILLS thought we were greatly indebted to Dr. Wilder for his remarks and suggestions with reference to this matter. Of course, the method which he suggests for cutting the skull away by an extra incision to one side of the longitudinal sinus is a good one, yet it seemed to him that we can accomplish the same result by sawing the skull according to the usual method, and then inserting a knife and following the line of incision carefully around, cutting the falx with care and separating the crista, and then making a careful dissection. He thought it important that the various objects in making the post-mortem examination should not be lost sight of. From a morphological standpoint there is no method better, perhaps; but as clinical physiologists, it is our duty to accomplish two or three objects. It is our duty to examine in a better manner, if possible, for lesions; and, in order to do this, it is necessary to have methods for examination, for not only the brain, but its membranes, as we pass along. The method of injecting with alcohol for the preservation of the brain, seemed to him to be an admirable one.

Dr. E. C. SPITZKA, of New York, said there was no question about the excellency of the methods described by Dr. Wilder when applied for merely gross anatomical purposes. But it frequently occurred that for pathological purposes post-mortem examinations were obtained with exceeding difficulty, and, perhaps, in their performance only very limited assistance could be obtained, and special care was necessary to protect the carpets and furniture, etc., and it would hardly be possible to carry Dr. Wilder's explicit directions into actual practice. There is a method by which he thought we can make a cerebral autopsy, combined with removal of the spinal cord, which covers all the exigencies of the case. Before speaking of that he would

say that Dr. Wilder's method of preserving the brain was absolutely unfit for histological and pathological purposes to neurologists.

The scalp is divided in the median line, beginning a little in front of the coronal suture and extending down the neck. If it is desired to remove the spinal cord, the incision is extended to the lumbo-sacral region. Two lateral flaps are formed in the head region, the soft parts being peeled from the dorsal aspect of the cervical vertebræ and the posterior half of the skull. A circular incision is made in the skull, behind the ears, and completely encircling it down to the foramen magnum, care being taken not to injure the connection between the articular processes of the atlas and the occipital condyles; the posterior half of the skull is removed exactly as the calvarium ordinarily is, by taps of a chisel; sometimes a *rongeur* forceps suffices to complete the division near the foramen magnum. The adhesion about the lateral sinus and torcular Herophilii can be readily overcome by a home-made apparatus like the knife shown by Professor Wilder. The advantages of this method are: 1. That the spinal cord and brain can be demonstrated *in continuo*. 2. That the critical operation of lifting the hemispheres and gouging out or injuring the cerebellum in dividing the tentorium is obviated. 3. That the nerves and arachnoidal laminæ at the base may be divided without allowing the brain to drag by its own weight. These nerves are divided from behind, forward. As soon as the chiasm is divided, the skull is inclined a little, and the brain allowed to fall into the hands of the operator by its own weight, it being completely separated, except where the olfactory filaments pass through the ethmoid; but these yield readily, and I have gotten the olfactory bulb intact as often by this as the other method. The removal accomplished, the occipital segment is riveted back, and a stick of wood inserted in the spinal canal and extending to the cranial interior, restores the strength to the head support, impaired by the breaking up of part of the vertebral attachments.

Dr. WILDER said he had ventured to doubt whether his

method was adapted to microscopical work. At the same time, before giving up the alcohol, he should like to see a brain worked that had been hardened according to *his methods*. As to removing the pia, he had not been in the habit of doing so until the brain had been somewhat hardened. It can usually be done better than at the time of extraction from the skull. If the brain is thoroughly hardened, he thought the pia could be removed at any time.

Dr. WILDER then read a paper, in part, "On Some Points in the Anatomy of the Human Brain."

Preparations and photographs were shown in evidence upon the following points:

Centrum ovale majus; as has been stated by Dalton, and here shown by sections of a brain hardened within the skull, the removal of the dorsal part of the hemispheres to the level of the callosum opens both procœliæ (ventriculi laterales), and thus renders impossible the unbroken area commonly figured and described as "centrum majus."

Striæ longitudinales; these markings of the dorsum of the callosum are the result of the pressure of the anterior cerebral arteries.

Eminentia splenialis; this provisional name is given to a well-marked elevation in the post-cornu just dorsad of the cephalic end of the calcar (hippocampus minor); it coincides with the position of part of the splenium.

Crista fornicis; in a child's brain this body (first found in a cat's brain, and later in the sheep) is fairly distinct, but no trace appears in the adult well-preserved brain. According to Prof. Wilder's suggestion, that the crista marks the limit of the primitive terma (lamina terminalis), it may be temporary in man, although constant in the cat.

Vericulum; this name is given to the transverse band or brace upon the caudal (posterior) aspect of the columnæ fornicis, which supports the crista.

Commissura fornicis; this is the Latin equivalent of Reichert's designation of the thin mesal band between the two halves of the fornix. The name was formerly applied by Prof. Wilder to the part now called vericulum.

Lyra ; this is not a part, but a surface ; the ventral aspect of the fornices, including the splenium.

Terma ; the lamina terminalis of a child after the removal of the pia from its ectal (exterior) surface. It is so thin as to be easily torn in removing or handling the brain.

Rima ; contrary to descriptions, the rima (fissura cerebri transversa) in man, as in the cat and all other mammals examined, does not extend the whole length of the mediacornu ; the tip of the latter, therefore, is completely circumscribed by nervous matter for 10-17 mm.

Ripa ; this name was first given by Prof. Wilder to the sharp edge resulting from the tearing off of the endyma along the margins of the rima and in other parts ; it is very distinct in the human preparations exhibited.

Aula ; this, the space between the two portæ (foramina Monroi), is narrower proportionately in man than in the cat.

Porta ; the two "foramina Monroi" are most readily exposed upon a brain, into the cœliæ of which alcohol has been continuously injected, by removing the lateral part of the hemisphere, including the striatum, as in the preparation of a child's brain shown. The dorsal limit of each porta is, in man, as shown by Professor Wilder in the cat, formed by the reflection of the endyma upon the intruded portiplexus. The length of the human porta varies from 4.5 to 6 mm.

Plexuses ; the relations of the several portions of the plexuses to the cœlian parietes, and the probability that not all have the same nature and relations, cannot profitably be discussed in this abstract. The same may be said of the question as to how far and in what way the dorsal surface of the thalamus appears as part of the floor of the proccœlia. In the cat and dog, according to Prof. Wilder's observations, the thalamus is wholly excluded ; in man, a part appears, but it is covered by the endyma, like that which forms the side of the diacœlia (ventriculus tertius), while the intervening ectocœlian (extra-ventricular) portion has no such covering

Dr. G. L. WALTON, of Boston, presented a paper entitled,

“Two Cases of Hysteria: 1. Hysterical hemianæsthesia in a man, following injury. 2. Hysterical anæsthesia of special sense, accompanying cutaneous hyperæsthesia.”

Both cases were under treatment in the Department for Diseases of the Nervous System at the Massachusetts General Hospital, and were kindly referred to Dr. Walton for investigation, by Dr. J. J. Putnam.

The first was interesting chiefly on account of its etiology. A fireman, with no history of nervous trouble, a robust, healthy man, fifty-five years of age, was thrown from his engine and struck violently upon the ground. He was rendered unconscious by the fall, was severely bruised over the right side, including the shoulder and hip. He soon recovered his consciousness, for some time afterward had but little use of his right arm and leg, and was confined to his bed for six weeks. Since that time he has suffered from a variety of nervous symptoms, including great pain in the back, loss of sexual desire, impairment of emotional control and power of concentration. Examination five months after the accident failed to reveal paralysis or atrophy of muscles, although the general strength of the right arm was impaired. All forms of sensation were lessened over the whole body, most marked in the right side, to the median line. There were disturbances of vision and hearing, and taste and smell were impaired. The symptom which was specially interesting was the typical hysterical hemianæsthesia.

The peculiar feature in the second case was the occurrence of anæsthesia of the special senses, combined with hyperæsthesia of the integument over the corresponding regions.

The patient was a Portuguese girl, sixteen years of age, and unmarried. No history of nervous trouble in her family could be elicited. She was always well until she came to this country, about one year ago, since which time menstruation, previously free and painless, has been scanty and painful, although regular. Four months ago her left breast began to be painful and tender, and the sensitiveness gradually increased and extended to the back, head,

and left arm. About three months ago she had an attack of unconsciousness, following fright, and it lasted two hours. No other distinct history of hysterical attack of any sort could be made out. Examination reveals extreme hyperæsthesia on the left side, extending over the trunk, head, and arm, bounded sharply by the median line, etc.

Both cases yielded under the use of the magnet.

Dr. SPITZKA moved that other papers presented be considered as read by title, and that the Association adjourn.

Carried: and the President declared the Association adjourned, to meet at the call of the Council in 1884.

Reviews and Bibliographical Notices.

A Treatise on Insanity in its Medical Relations. By WILLIAM A. HAMMOND, M.D., Surgeon General United States Army (Retired List), Professor of Diseases of the Mind and Nervous System in the New York Post-Graduate Medical School, President of the American Neurological Association, etc., etc. D. Appleton & Co., New York, 1883.

This portly and well-written volume appears almost simultaneously with the manual of Dr. Spitzka, and is from the pen of one of the very few men in this country, whether in or out of the circle of professed alienists, competent by experience and study to write a book on insanity. Prior to the appearance of the works on insanity of Drs. Hammond and Spitzka, perhaps no systematic treatise on the subject had appeared in American medical literature since that of Dr. Benjamin Rush, of Philadelphia, of nearly a century ago.

We may pass by, for the present, the reasons given by the author in the preface to his work, justifying him in its preparation. The volume comprises nearly eight hundred pages, and is divided into comprehensive sections with the following titles :

I. General Principles of the Physiology and Pathology of the Human Mind.

II. Instinct ; its Nature and Seat.

III. Sleep.

IV. Description and Treatment of Insanity.

To adequately review these important topics as they are here treated would demand the space of a small volume. Hence, but few of them can or will be discussed.

For the practical purposes of the general practitioner, or even of the alienist, the definition of mind given by Dr. Hammond is adequate. But in view of broader relations we would not only

require enlargement, but even qualitative modifications before it would be acceptable to us.

In the second chapter, under the head "Divisions of Mind," are certain statements which attract our attention. Among them we would cite the following: "The mind, like some other forces, is compound—that is, is made up of several sub-forces. These are: perception, intellect, emotions, and will" (p. 15). It seems strangely mechanical to speak of mental *sensibilities* as *forces*. Certain it is that the majority of well-informed readers in psychology from whatever school would pause before admitting perception and emotion (feeling) without discrimination into the category of forces. Dr. Hammond's discussion of the highly important subject of perception is of such a character as to make it seem necessary to inquire with some care into its nature and anatomical seat. To go back a little, it may be said in a general way that there are two forms of sensibility, *unconscious* and *conscious*. Whether any part of the gray matter of the nervous system is entirely devoid of unconscious sensibility may or may not be questioned. But that only limited parts of the nervous system, in man at least, are the anatomical seats of sensibility *with consciousness* in man, can admit of no well-founded doubt. But it remains a question to this hour just what are the limits of the nerve areas within which occurs that distinct mental reaction to sense impressions as well as to certain other mental states or conditions known as consciousness. Much has been done, however, in the progress of nerve physiology toward defining the areas in question.

It seems to us highly probable that perception in the accepted use of the term denotes *sensibility with or in consciousness*. Within the field of consciousness, and there alone, may a *sense impression* (not a *sensation*, as is so often erroneously said) be perceived—that is, known or cognized as such by the mind.

Perception includes, therefore, in the full sense of the word: first a sense impression; second, that the impression shall be felt or cognized by the mind, the act of perception including to a variable extent in different cases the active mental element of attention. The vast majority of sense impressions never enter the "sphere of consciousness," but are either disposed of in the wilderness of reflexes of which the nervous system is the field, or are diffused throughout the nerve mechanisms into which they are projected, never giving rise to manifest reflexes, nor if to any, to none but the vaguest states of consciousness. So much then in a preliminary way as to an outline definition of perception, than

which there is no more important subject for study for the medical psychologist. Dr. Hammond's definition of the word we may pass as substantially correct. But another question of great interest arises in his discussion as to the real seat of perception. In what part or parts of the nervous system is this function accomplished? Dr. Hammond says (p. 18): "There are reasons for believing that all perceptions are formed in the optic thalami." By this statement we understand our author to mean, the optic thalami are the anatomical seats of, or centres for, perception. In order to render the real meaning of our author clear, we would refer readers to the diagrams on pages nineteen and twenty-seven of the work.

If the thalami remain intact, though the mass of the hemispheres above them be removed, perceptions or sensations *with consciousness* yet occur. Dr. Hammond has been led to adopt the opinion just expressed for the following, among other, reasons, which we summarize :—

1. Because, as Magendie was perhaps the first to show, irritation of these parts may cause excessive pain, while irritation of other parts of the brain does not cause pain at all, or to the same degree.

2. Because in experimental destructive lesions of the optic thalami, like those of Fournié, sensation in the opposite side of the body is diminished, or even abolished.

3. Because pathological destructive lesions of the gray masses in question in man have led to abolition of sensibility in the opposite half of the body.

4. Because non-destructive disease of the optic thalami are believed to be the cause of hallucinations, as of sight and hearing, particularly in the opinion of Luys and his pupils, among them being M. Ritti.

5. Because certain of the lower animals, pigeons for example, appear to retain visual perception after removal of the hemispheres.

6. Finally, because anatomical research on all hands tends to show that many, if not all, sensory nerve-tracts appear to enter or to be represented in the thalami.

But in truth it must be said not one of these reasons really support the view of Dr. Hammond. They are all susceptible of being harmonized with the view that the cerebral cortex is the actual seat of sense perception in man and the higher vertebrates.

It may indeed be admitted that many if not all sensory tracts from the cord and medulla and certain sensory nerves, notably the

optic and auditory, as they pass on their way to the brain converge in the gray matter of the thalami, where the sensory fibres contract relations, permitting on the one hand a most extended series of reflexes in coördinate and subordinate portions of the motor side of the nervous system, and on the other hand connections are formed with sensitive areas of the cortex above, by means of fibres arising in the thalami and diverging in various directions to terminate in the cortex as already said; the latter being the true and only seat of perception, as above defined, at least in man and higher vertebrates,—a position, apparently the clear outcome of physiological researches, such as those of Ferrier, Murck, and others. But even omitting these latter altogether, the position we have assumed seems necessitated by the pathological observations of a host of competent investigators as to the effects of many cortical lesions in blunting or even abolishing sense perception, whether special or general, in the presence of cortical lesions, when at the same time the thalami have been found normal. From the position we have just taken we may readily see how destructive lesions of the thalami might lead even to abolition of sensibility on the opposite side of the body, for the same reason that section of the cord or of nerves lower down would lead to the same result without justifying the assumption that they are the seats of perception. Irritation of these bodies, or of nerve-tracts entering them, might give rise to pain, on account of the impressions so produced being projected into sensitive areas of the cortex. Likewise irritative disease of the thalami might give rise to morbid excitations borne by radiating fibres into sensitive areas of the cortex by the same way as those coming naturally from the outer world, and, according to the law of eccentric projection, referred by the individual to the outer world, though the excitations which form the sense basis of a hallucination come really from the diseased thalamus. Finally, as regards the results of removing the hemispheres of pigeons, they are open to serious questions as to their real significance in respect to the presence or absence of consciousness, and when applied to man they have more than doubtful value. But to consider these latter questions in a satisfactory manner would extend this notice beyond ordinary limits. Finally, before dismissing this subject, we would call attention to the real position of M. Luys as to the anatomical seat of sense perception. Dr. Hammond distinctly claims M. Luys as a supporter of his doctrine, “that all perceptions are formed in the optic thalami.” But a

careful study of the hitherto rather neglected but admirable works of M. Luys leaves us with the conviction that in his view the real field or seat of sensation with consciousness is in the cerebral cortex. Of his later works we would refer the reader to p. 101 of his "*Traité Clinique et Pratique des Maladies Mentales*," etc., Paris, 1881; and to page 45, to the diagram on page 61, to pages 66, 67, and 99, *et seq.*; and besides to other portions of his admirable little work, entitled "*The Brain and its Functions*," published by D. Appleton & Co., as a member of the *International Scientific Series*. We have given so much space to a discussion of the question as to the anatomical seat of perception, because of its signal importance, and because Dr. Hammond, if we have correctly understood him, has sanctioned by his high authority a serious error. In other respects, the brief chapter on "perception" is clear and practical.

Under the head "Intellect," Dr. Hammond gives the merest outline of a discussion—a little over one page, embracing a diagram, the latter intended to show the relation of a sense organ to the "organ of perception"—in other words, to the thalamus,—and finally to show the relations of the organ or organs in which a perception is converted into an idea, namely,—the cerebral cortex. In this brief space Dr. Hammond gives an old classification of the "intellectual faculties," and also the one proposed by Bain. The latter is rejected as less convenient than the former. In this matter we not only agree with our author, but would probably go beyond him in saying that, interesting as are the works on Mental Science of Alexander Bain, when he is dealing with particulars, yet his analysis and generalizations are so hasty, and, as a rule, so superficial and even mechanical, as to embarrass rather than aid the critical student. We know of no living writer having acquired a reputation in the field of physiological psychology less likely to enjoy a reputation in the years to come.

Under the head of Emotions, Dr. Hammond classifies as worthy of distinct positions in the list, "Superstition," "Fanaticism," and "Religious Feeling." Surely these can be neither designated as simple emotions, nor as distinct one from the other. They are complex, one embracing elements common to the others. Dr. Hammond calls in question the correctness of the statement of McCosh, that in the production of an emotion "there is need first of some understanding or apprehension—that is, of an idea." For ourselves we can agree not only to the erroneous character of the statement of Dr. McCosh, but must say, as a

result of careful study of his works, they are full of equally loose declarations.

But passing on from the first two preliminary chapters, in which Dr. Hammond defines the nature of mind, its divisions, according to differences in function or manifestation, we come to a discussion of the very important subject of "The mental and physical conditions inherent in the individual which influence the action of the mind." Under this head we have considered briefly—too briefly—the effects of differences in brain constitution on mental constitution,—for scarcely four pages are given to the subject; and next we have a chapter on "Eccentricity." An eccentric person is said to be one whose mind deviates "in some one or more notable respects from the ordinary standard, but yet whose mental processes are not directly at variance with that standard." This may be regarded as a reasonably satisfactory definition, though it leaves the question of the difference between eccentricity and insanity to be regarded as merely one of degree, which may readily be admitted. By the term "Idiosyncrasy," Dr. Hammond understands "a peculiarity of constitution by which an individual is affected by external agents in a manner different from mankind in general." An idiosyncrasy, therefore, differs from an eccentricity chiefly in this, that one morbid condition is brought into play by some *external* object, while the other arises immediately from *internal* conditions. Genius is defined as follows: "The inherent tendency which some individuals have for original work of a high order in any department of literature, science, or art, is called genius."

In his rather lengthy chapter on "Habit," our author has by no means worked out, as may be and as ought to be done in a work like this, the physical basis of habit as laid in the nervous system.

There is a comparatively full discussion of the subject of "Temperament," of which Dr. Hammond admits four principal varieties: the sanguine, lymphatic or phlegmatic, the choleric, and the nervous. Important as the subject is in a practical way for the physician, there is so little precise knowledge, and hence so little in the way of sharp definitions, available in discussion of the subject, that we must pass alike the chapter and its subject for other parts of the volume. The chapter is, however, instructive and highly entertaining.

The subject of "Constitution" receives far too little attention, not only in this work, but the same may be said of the vast majority of medical works published.

"Hereditary Tendency" receives fuller treatment, but this chapter contains too little in the way of instructive judgments, based on the long study and wide experience in such matters that we must suppose Dr. Hammond to have had. A fair *résumé*, interspersed with the personal observations and conclusions of the author, is given as to the influence of age and sex in relation to mental disease. This first division of the work, consisting of one hundred and twenty-one pages, terminates with a brief chapter on "Race in its relation to mental disease." On the whole, while we have felt bound to join issue with the author at certain points, yet we desire to commend heartily the plan of opening a study of insanity by a formal consideration of the subjects so hastily passed in review.

In the next section (pages 122-150) the subject of "Instinct, its nature and seat," is treated. With the views expressed in the following extract we entirely agree: "A work on insanity would manifestly be incomplete without some reference to a principle of life present in all organic beings, from the highest to the lowest, from the most insignificant plant to man himself, and which, in all, determines, to a greater or less extent, the character of the acts by which existence is rendered possible. When we bear in mind the fact that, in man, a very considerable proportion of cases of mental derangement have their origin in aberrations of some one or other of the instincts, the propriety of its consideration becomes still more apparent. A great deal of confusion has existed among physiologists and psychologists relative to the differences between instinct and reason, and undoubtedly there are many difficulties in the way of distinguishing, with perfect accuracy, the manifestations belonging to each."—Page 122.

As Dr. Hammond truly says, "no inconsiderable amount of the obscurity has arisen from the loose manner in which words have been employed and meanings ascribed to them. I shall endeavor, therefore, to give a clear idea of what instinct is, and to separate it, by well-defined limits, from mind, before proceeding to the consideration of its aberrations." In the following fifteen pages, the more or less discordant opinions of not less than twenty-four different writers are quoted or summarized as to the *nature* of instinct, embracing examples of what are considered instinctive actions. We would have much preferred a close and fresh discussion of the whole subject by the author, embracing his own views, more fully stated and more closely reasoned than we find them to be in this chapter. Dr. Hammond says, in speaking of

instinctive actions: "They are not set in operation by sensations; on the contrary, the animal is prompted by the internal power to employ its senses in order to accomplish its objects. This force, therefore, stands in lieu of the will. In the case of Galen's goat, already quoted, it was instinct which impelled the animal to use its senses. It was not instinct, but reason, which made it select the milk. Instinct is not, therefore, the result of experience, or of reason, or of any choice founded on sensations. The line, therefore, between rational and instinctive actions can be closely drawn. The *former*, as Locke and his disciples have proved, are formed from distinct impressions which come to our minds from *exterior objects* through the medium of the senses. The *latter* arise *from within, as the offspring of a force entirely independent of and even above the will.*" We may therefore summarize as follows the two capital criteria of instinctive actions as they are laid down by Dr. Hammond: 1. That actions called instinctive shall not have been *learned*; and, 2, that they shall be prompted by an *internal* stimulus, and shall not be excited by any sensation whatever from the outer world by way of the sense organs. As regards the first criterion, it must be accepted as true. Those actions performed prior to experience, which as a rule the individual is *born* with the capacity for doing, are instinctive. The mechanisms for instinctive action are inherited, and, as a rule, practically perfect at birth, or if not perfect at birth, they are developed without the distinct purposes or efforts of the individual. But we would reject the second criterion as being not fundamental. Every sensation, or feeling, or appetency, or emotion, when it arises, must appear within some sensitive nerve area, great or small. The nerve areas in question may be exterior or interior as regards the body, but in any case the sensitive impulses produce or tend to produce corresponding motions. If motions, or actions in consequence of stimuli from any quarter whatever, occur in nervo-muscular apparatuses, acquired by inheritance or independently of the training or education of the individual, they are instinctive. The word "instinctive" is properly applied to those *bodily and mental actions* which are not learned, and in the performance of which the will and intellectual faculties and acquirements of the individual have no necessary share. They are done *for* the individual rather than *by* it. Where instinct has the widest scope, volition and intelligence have the least, and *vice versa*. The definition just given, we believe, is the one justified by a final analysis of the phenomena of instinctive life. Of course a study of instinctive

actions leads naturally to a study of their causes, and this inquiry leads directly, broadly speaking, to the sensitive side of an organism, the actions of which become the objects of study. This inquiry will, we believe, show that instinctive actions may be prompted from either within or without the body, and that instinctive actions, or better instinctive life, may be modified in various ways and degrees by the play of volition and reason, and *vice versâ*. Such, it seems to us, is a simpler and broader statement of the nature and sphere of instinct, than the one given by our author in his very interesting chapters on the subject.

The elaborate chapters on "Sleep" and "Dreams" are filled with quotations from a host of writers old and new, many of them highly interesting and curious, but in nearly every case serving to raise questions rather than answer them. In the chapter on sleep Dr. Hammond presents much the same views as those set forth in his book on "Sleep and its Derangements," published many years since. With his general doctrine, that sound, healthy sleep is accompanied, possibly caused, by diminished blood supply to the brain, we can agree, but regret nothing more is said as to the probable mechanism by which the cerebral vessels contract, giving rise therefore to a relative anæmia, to lessened brain activity, leading farther on to deep brain repose or sleep. In our opinion a useful advance in our author's explanation of the phenomena of sleep may be now given. The explanation of the *modus agendi* of dreams we consider as wholly inadequate, though correct as far as it goes. There is relatively too little close discussion and relatively too much in the way of collecting curious and striking histories of cases and anecdotes from the wide field of physiological psychology and medicine. These latter render the chapter fascinating to readers, but not so satisfactory to seekers for practical truth. These chapters, comprising two hundred and sixty-two pages, close the preliminary part of the book, the remainder of which is given to the "Description and Treatment of Insanity." To this more practical though not less interesting part of Dr. Hammond's book we would now direct the attention of the reader. In it we have gathered the vast experience and protracted studies of our author.

Very properly a definition of insanity is first of all attempted. Dr. Hammond finally adopts, with an amendment, the definition of Dr. T. K. Cruse as the most free from objection. It is as follows: "Insanity is a psychic manifestation of brain disease." To this Dr. Hammond would add: "unattended by loss of con-

sciousness." This may be regarded as a good definition in a few words. But while it is a duty to frame from time to time definitions as nearly as may be correct for the practical purposes of investigation, discussion, and in view of the requirements of jurisprudence, yet we should never forget that perfect definitions await perfect knowledge, which no one can pretend to have of insanity. That endless differences should arise among writers on insanity, when they attempt definitions, need not be the cause of surprise, in the presence of so many unsolved if not insolvable questions. The definitions of words such as illusion, hallucination, delusion, incoherence, delirium, "lucid interval," etc., may be considered as correct and aptly illustrated.

It is impracticable within the limits of a book review, however ample, to discuss fully the subject of classification of insanities. The system proposed by Dr. Hammond agrees in some respects, almost of necessity, with certain of the numerous attempts by earlier and contemporaneous writers. It is the result of much study and experience on the part of its author. But we must decline an expression of opinion whether as to its excellencies or defects. That it has defects the author clearly recognizes. For ourselves we share the not uncommon opinion, that an unobjectionable system of classification of insanities in the present state of our knowledge is impossible. But a recognition of this fact should not paralyze endeavors to approach nearly, as far as possible, a perfect system.

Of the forms of insanity treated in the latter two thirds of the work of Dr. Hammond, it may be said those most elaborately discussed are those most commonly met with. While there are many points in this as in the first part of the work from which we feel obliged to dissent, yet the practical part of the work is every way less liable to provoke criticism than that devoted to a discussion of general principles. Each article is literally crammed with apt and curious illustrations of the forms of insanity under discussion. But in this work, as in all the writings of Dr. Hammond, there is a comparative lack of close, painstaking discussion of phenomena. To many readers this would appear a merit rather than the lack of a *desideratum*. This quality renders Dr. Hammond's works easy to read and always delightful to the reader. We do not know of any medical author writing in a more easy or flowing style. The parts of Dr. Hammond's works in which the strictly medical therapeutics of disease is set forth has always proved most interesting to the profession, and the present work forms no exception in this respect to his earlier and justly popular productions. When it is

considered how much Dr. Hammond has written in the last twenty-five years, and when we remember his other arduous labors, the wonder is that what he has written should have met so uniformly with a favorable reception. No other member of the medical profession in this country is more widely known abroad. No medical man in this country has, or deserves, warmer personal friends, or has had enemies more bitter or relentless ; and perhaps no other member of the medical profession in this country has won a more signal triumph over adverse circumstances than has the author of the work to which we have called attention in this notice. However much it may contain to which the independent and critical student may take exception, yet it must be considered a notable contribution to English psychiatric literature, and a worthy companion volume to the author's work on " Diseases of the Nervous System," which has had so fortunate a history.

J. S. JEWELL.

**Insanity; its Classification, Diagnosis, and Treatment.
A manual for students and practitioners of medicine.**

By E. C. SPITZKA, M.D., Professor of Medical Jurisprudence, and of the Anatomy and Physiology of the Nervous System at the New York Post-Graduate School of Medicine. New York: Bermingham & Co., 1883, 8vo, pp. 415.

It was to have been expected that the attention which has been given by Dr. Spitzka to cerebral anatomy, physiology, and pathology, would lead to the production by him of a treatise on some subject connected with his studies, and in the work before us such expectation has been amply fulfilled. It was perhaps equally to have been anticipated that the volume would, to a great extent, be a synopsis of the views of recent German alienists who are, in our opinion, not always the best models to study, or guides to follow. But, though this anticipation has also been realized, the treatise is marked by many original opinions of the author, and its arrangement, classification, and general tone are sufficiently characteristic of his individuality as to make it altogether unlike any other of similar scope hitherto published.

The work is divided into three parts, of which the first treats of the general characters and the classification of insanity. It is probably that with which most fault will be found by the so-called medical psychologist, for it is that which is most marked by the author's peculiar views, and original views on any subject are those

with which the routinist and the sciolist are ever on the watch to censure. Dr. Spitzka will probably learn, ere he is much older, the danger to which he exposes himself by presuming to have opinions of his own. He may console himself, however, by the reflection that there are probably not a dozen persons in the country competent to review an original work on insanity, and that the criticism he may receive on these points will in general scarcely be worth the paper on which it may be written.

In the remarks we shall have to make relative to the views enunciated in this section of the work before us, we shall not forget that the questions discussed are those upon which differences of opinion are allowable and in fact desirable in the present state of psychological medicine. We have, therefore, no great objections to make to Dr. Spitzka's definition of insanity or to his system of classification, knowing perfectly well that they are not final, that they can make no pretensions to exactness, and that probably he himself within five years will give a different definition and propose a different classification. Indeed, those given in the present volume differ essentially from those which he enunciated a few months ago. We shall, however, indicate farther on a few points which have occurred to us from a consideration of his classification, not, however, because we think them of overwhelming importance, but simply to show that like all other systems his is not invulnerable.

There are a few points, however, in his first chapter on "The Definition of Insanity" to which we desire to direct his attention, satisfied as we are that they have been hastily formulated, and that reflection will cause him to attempt their modification. For instance :

On page 21, we have the assertion that, "Beliefs which, in the earlier periods of history, were creeds with the majority of mankind, would to-day, in members of a civilized race, rank with the insane delusions." This is surely incorrect, as a little reflection will suffice to convince any person. There is not a belief of any of the "earlier periods of history" which cannot show its equal in absurdity at the present day. The "civilized races" do not, it is true, believe in divination by the entrails of animals, but many "members" of them credit and act upon the hypothesis of "faith cures," of diagnosis of diseases by clairvoyance, by inspecting the hair of the patient, and other like nonsensical methods, and yet the believers in these doctrines are not insane, they are simply ignorant, and ignorance is not insanity. Again, there are at the

present day many believers in diabolical possession—an article of faith of the Christian Church,—in witchcraft, in the divining-rod, in vampyrism, and other delusions fully as baseless; and there are forms of religion quite as preposterous as any ever held at any time in the history of the world, but those entertaining them are not supposed to hold insane delusions. Indeed, we are justified in asserting that there is no belief held through faith alone that can properly be regarded as ranking with an insane delusion, no matter how much at variance it may be with our own ideas.

Dr. Spitzka appears also to be somewhat at sea in the matter of what has been called “legal insanity.” We cite the following paragraph (page 23), which contains the opinions to which we refer :

“On some occasions the question of defining what is called ‘legal insanity’ may be presented to the reader of these lines. When that question is asked he may safely challenge the questioner to show him a broken leg, or a case of small-pox, in a hospital ward, which is not a broken leg, or a case of small-pox, in law; to show him a tumor, or a softening of the brain, which is meningitis, or sclerosis, in law, or to define the conditions under which any disease-symptom becomes an indication of health. When these conditions are complied with, and not till then, may the physician attempt to define ‘insanity in law’ as distinguished from insanity in science. In the meantime, he may rest contented with the dictum of one of the best legal authorities, that that cannot be sanity in law which is insanity in science, just as nothing can be a fact in science and a fiction in law at one and the same time.”

Now we venture to say that there is scarcely an assertion in the foregoing paragraph which is not absolutely and wholly incorrect in its conclusions, and we propose to establish this fact, because we think it is matter of some importance that the distinction between the two conditions of legal and medical insanity should be clearly made out.

If the law fairly represented the state of science on any one subject, of course there would be an accordance between them in regard to that subject. Taking Dr. Spitzka's examples, he will scarcely deny that it is perfectly competent for any law-making power to define what shall be understood in its courts as a “broken leg,” or a “case of small-pox.” We all know what these things are in surgical and medical science, and it happens that the law is here in accord with the teachings of surgeons and physicians. But suppose the Legislature should pass a law that no injury of

the bones of the leg should be regarded as a fracture in which the soft parts were not also broken ; then a simple fracture of the bones of the leg would not be a "legal " fracture. Suppose, again, that a law should ordain that no eruption on the skin should be considered in law to be small-pox unless the pustules were confluent ; then a case of discrete small-pox would not be small-pox in law, and a patient having that form of the disease and living in a place, the ordinances of which required that all persons with small-pox should be sent to a special hospital, could not be so sent, for he would not have "legal " small-pox.

We know that the astronomer's day is twenty-four hours, and that the day, popularly, is that portion of time included between the rising and setting of the sun. But the law has often stepped in and defined the day according to its own ideas. Thus, when stating that certain workers shall receive so much for a day's work, it goes farther and declares that for the "purposes of this act " a day shall consist of eight hours, or ten hours, or more, as the case may be. The number of hours specified constitute, therefore, a "legal " day, a period of time altogether different from either the scientific or the popular day.

There is a story so apposite to the question before us that it may not be improper to relate it, especially as it shows to what extremes the law, without regard to science, will go in its definitions.

A merchant in a city of Massachusetts agreed to buy, at a certain price, all the "fish oil " that a whaler should bring back from its voyage. When the vessel returned, at the end of two or three years, oil had fallen to so low a figure that the merchant found that were he to adhere to his contract he would be financially ruined. In his dilemma he had recourse to science, and alleged as a reason for declining to fulfil his obligation, that as a whale was not a fish, so whale oil was not "fish oil," and that consequently there was nothing for him to buy. The owners of the vessel brought suit against him, and the merchant had no difficulty in establishing, by the highest scientific evidence, that a whale was not a fish, and that whale oil was not "fish oil." The Court, however, decided that in law a whale was a fish, whatever it might be in science, and the merchant lost his case. Of course, every naturalist knows that a whale is a mammal, and not a fish, but no person will question the justice of the Court's decision.

Again, over thirty years ago a case was tried in Scotland, in which the most learned men—chemists, mineralogists, geologists,

botanists, and histologists—testified diametrically opposite to each other in regard to whether a certain substance, called from its locality the “Torban Hill mineral,” was or was not coal. The defendants had leased a piece of property with the right to mine all coal that might there exist, together with all the iron ore, limestone, and fire-clay, but were prohibited from removing any other substance. They immediately began to extract a material which burned like coal and looked like that substance. The plaintiffs at once began suit against the lessees, on the ground that the mineral was not coal, and hence the defendants had no right to take it out. In support of this view they brought forward a mass of scientific testimony which went to show that the substance was not coal, chemically, mineralogically, geologically, botanically, or histologically. Dr. Brande did not know what it was, never having seen any thing like it before. Dr. Anderson could not give it a name, but declared that it was not coal. Dr. George Milne considered it to be a clay highly impregnated with bitumen; it certainly was not coal, and so on. On the other hand, numerous experts swore that it was coal. The Court ridiculed the scientific testimony, and advised the jury to be guided by common-sense, and they decided that, for all the purposes of the contract, it was coal,—in which view, as in the “fish-oil” case, we scarcely think disinterested persons will fail to coincide.

But without adducing other examples from the hundreds at our command, it will be sufficient to say that the laws of probably all civilized States declares emphatically what insanity is. In the State of New York, the law definitely affirms that those persons only are insane, and consequently irresponsible for their acts, who do not know the nature and consequences of their acts; that is, who cannot distinguish between right and wrong. In the State of New York, therefore, “legal insanity” clearly exists, and the same is true of other States, though great differences are to be found in the legal idea of what constitutes insanity. Surely, however, we have no right to find fault with the law for this state of affairs, for science has not yet made up its mind as to what is, and what is not, insanity.

We are quite sure that Dr. Spitzka will see the force of the remarks we have felt compelled to make relative to the question, and will appreciate the fact that, rightly or wrongly, scientifically or unscientifically, the law declares any thing to be insanity which it chooses so to declare, and that this is “legal insanity”; the legal luminary to whom the doctor refers, to the contrary notwith-

standing. Doubtless, it is to be desired that harmony between science and law should exist upon this as well as upon other points, but we certainly have no right to expect it in the present unsettled condition of alienistic medicine, where the most eminent of its professors cannot agree upon what is insanity and what is not, and when not a single one of them can be relied upon to hold the same views upon the subject next year that he holds to-day.

The chapter on "Delusions" is among the best in the book, containing, as it does, much interesting matter presented often in new lights. We think, however, that the author has not sufficiently indicated the difference in the importance to be attached to delusions, as they relate to matters of faith or of fact. And, we think, also, that at times his ideas are not so clearly expressed that "the wayfaring man though a fool" could understand them. In fact, he has occasionally an apparent difficulty in bringing himself down to the level of those understandings which, though not those of fools, are, nevertheless, those of persons not accustomed to any but the very simplest kind of reasoning. For instance, the average medical student would probably find the following paragraph (p. 34) a pretty tough piece to thoroughly comprehend:

"Here, however, as elsewhere, the essential element is the cerebral fault (the logical failure to correct the delusion with the weakening of the *ego*) that prevents the development of this insane symptom. The visceral disease or the sensorial disturbance is an accidental factor; the patient would be insane with or without it in the vast majority of instances, and in its absence his defective mind would fall a prey to some other delusion, under the assaults of some other incidental occurrence which, equally with the visceral disorders alluded to, would fail to provoke delusions in a healthy brain."

The chapter on "Imperative Conceptions and Morbid Propensities" is also excellent. Dr. Spitzka, however, appears to regard all imperative acts as being the results of imperative conceptions, overlooking those irresistible acts which do not start from any conception of any kind, but are entirely automatic, or even contrary to conceptions. We must also object to the Münster Anabaptists being regarded as the mediæval models of our religious revivals and camp-meetings, seeing that it was not until 1534, long after the mediæval period, that the sect in question originated.

On page 41, the expression, "embrace of the adored subject," should read, "embrace of the adored *object*."

In the chapter on "Hallucinations and Illusions," we have hallucination defined as "the perception of an object as a real presence, without a real presence to justify the perception." Surely there can be no perception of an object unless there is an object. In hallucinations there is no object at all.

The chapters on "Emotional Disturbances," on "The Memory and Consciousness in Insanity," on "The Will in Insanity," on "The Physical Indications of Acquired Insanity," on "The Somatic Signs of Insanity," etc., and on "The Morbid Anatomy of Insanity," are in general clearly and instructively written, though, perhaps, some of them, as for instance that relating to the will, are not as fully developed as they might have been with advantage to the student; and then, as the final chapter of this part, we have that which relates to "The Classification of Insanity."

In the objections which the author makes to other classifications than his own, he is logical and perspicuous. The system which he proposes in the present work is essentially different, as well as fuller and more ambitious, than that which he presented a year or two ago. It is in our opinion one which the present state of the science does not warrant, for it undertakes to arrange the several forms of mental derangement into groups, sub-groups, classes, divisions, orders, sub-orders, and genera—why not species also?—as if they were so many plants or animals, the features of which are as invariable and as sharply defined as those which zoölogists make for the better study of their subjects. Besides, the details of the classification are in the highest degree artificial in some of their most essential parts. For instance, the "first class" of "Group First" and "Sub-Group A" is made to consist of those genera which are "not associated with demonstrable active organic changes of the brain," and this class includes simple mania, simple melancholia, katatonia, transitory frenzy, stuporous insanity, primary confusional insanity, primary deterioration, secondary confusional insanity, terminal dementia, senile dementia, and the insanity of pubescence. In denying a demonstrable pathological basis to these several forms, Dr. Spitzka is entirely within his own rights as an author and teacher, but it must be added that he ignores the researches of competent alienists of both early and recent periods, who have, after thorough investigation, arrived at a very different conclusion. At any rate, it appears to us unwise to base a classification upon an assumed fact, which even if it be a fact to-day, may not, and probably will

not, be a fact at some not very distant period. Even within Dr. Spitzka's own professional life, the morbid anatomy of many diseases has been clearly established where previously it was altogether unknown, as, for example, that of locomotor ataxia and other forms of spinal diseases. What would be thought now of the classification of spinal affections made twenty years ago, which placed infantile spinal paralysis in a group of which the morbid anatomy was unknown.

Moreover, if the fact that a particular form of insanity is to be classified according to whether its morbid anatomical basis has been or has not been discovered, we see no reason why the rule should not be also applied to the so-called alcoholic insanity, hysterical insanity, and epileptic insanity, in all of which there are certainly no constant or uniform patho-anatomical features

There are many other objections which might be urged against the system in question, some of which the author has himself frankly stated. No classification can at the present time be made which can be regarded as even approximately correct. It is perhaps well, therefore, that every writer should make his own, for in that way only can we get the full benefit of his views. All classifications contain some elements with which most alienists will coincide, but the one that is anatomical and pathological—and no other has any right to be considered final—will not be made for many a long year. Till we are able to make that, Dr. Spitzka's will do as well as any other.

"Part Second" is devoted to the description of the several forms of insanity as differentiated by the author. With this division it would be difficult to find fault. It is perhaps the most important part both for the student and the practitioner, and neither can study it without obtaining the reward of increased knowledge.

Part Third, which treats of "Insanity in its Practical Relations," contains chapters of different degrees of merit. Those upon "How to Examine the Insane," "The Differential Diagnosis of the Forms of Insanity," "The Recognition of Simulation," and the "Physical and Psychical Causes of Insanity," are excellent in almost every respect, while those upon the "Medicinal and Dietetic Treatment of Insanity," and the "Psychical Treatment and Management of the Insane," are meagre in the extreme. Thus the first of these contains less than thirteen pages, and the second less than five. No mention is made of iodide of potassium, the one drug which appears to exercise any curative influence over general paralysis, and which in insanity of syphilitic origin is indispensable; none of

mercury, also useful in both these conditions ; none of arsenic, so valuable in all hyperæmic or congestive insanities ; none of quinine ; none of aloetic purges, which, as Schroeder van der Kolk long ago pointed out are of inestimable value in certain forms of melancholia ; indeed, purgatives of any kind are not included in Dr. Spitzka's *armamentarium*, and nothing of local blood-letting, dry cups, or of heat or cold.

The remarks made by the author relating to electricity are undignified and flippant. He has no warrant for intimating, as he does, that the use of static electricity is a piece of charlatanry destined to drop into oblivion. Static electricity is yet on trial, and we happen to know that the author has little or no practical experience of its influence in mental aberration. Statements like the one we refer to—and this is not the only one—mar what is in many respects a striking and original work, and it is to be hoped that in future editions they may be “conspicuous by their absence.”

Dr. Spitzka's style is generally clear. He exhibits, however, a tendency to the construction of long and compound sentences, which at times make the reading of his book a little tedious. The matter is, however, so generally excellent that faults of construction may well be pardoned.

Occasionally there is a tendency to manufacture words which partake of the character of barbarisms. Thus we have “persecutory,” a term for which Dr. Spitzka appears to have a special predilection, but which is a poor substitute for “persecutive,” and “dilettantic” (which, by the way, even if allowed, has no right to three ts), for which there is no excuse, especially in the connection in which it is employed.

A feature with which fault may justly be found, is that which consists in the fact that the author, when referring to the statements of other writers, does not always or even generally tell us where these statements are to be found, and when he does he neglects almost invariably to indicate the page. Thus we are informed (p. 276) that “Dr. Ireland classifies idiocy as follows,” etc.; now as there has been no previous reference to Dr. Ireland's work, the reader in search of fuller information on the subject is put to inconvenience. Again, it is stated that “Zacchias, in consonance with the spirit of his age, recommended flagellation and Campagne the douche” (p. 364), but we are left in ignorance as to where they made these recommendations ; and still again the statement is made (p. 164) that “Crichton Browne described as

chronic brain-wasting a disorder," etc., without there being any reference made to the place where the description is to be found. An occasional failure of this kind is of course excusable, but it is so general with Dr. Spitzka as to interfere very materially with the use of his book by those desirous of studying with thoroughness the conditions of which he treats, or of verifying his statements.

There are a few wood-cuts, which are coarsely executed. The cut given on page 314 as a portrait of Dubourque, the "Fourteenth Street Assassin," may be a perfect ideal of monomania of persecution, but it is not in the least like Dubourque.

There are not many typographical errors. "Dagouet" is given for Dagonet, "Albutt" for Allbutt, "etat criblé" for état criblé, and "crampi" for cramps. Finding "crampi," however, repeated in the index (which, by the way, is an unusually good one), we are somewhat in doubt as to the word being a typographical error. If it is not, we frankly confess our ignorance of its meaning. It is not English, it is not French, it is not German, and it certainly is not Latin.

But notwithstanding the defects which we have found it necessary to point out, there can be no doubt that Dr. Spitzka's book is a great advance on the English treatises with which, heretofore, physicians in this country have been content. Indeed, if the tone of it were altered, personalities excluded, and fuller details given in regard to the treatment of the insane, we should find no great fault with it except such as must always be found by one writer commenting on the work of another, and which is solely due to the fact that the two hold different views relative to subjects upon which differences are allowable. Dr. Spitzka does not appear to recognize the right of any one to differ with him, and this constitutes an unpleasant feature of what would otherwise be a delightful book to peruse. He has sharp remarks, inuendoes, and sometimes rank abuse for those with whom he does not agree. This is certainly not in accordance with that liberty which constitutes the basis of all science. He ought to bear in mind that the individual who differs with him, for instance, in regard to the use of phosphorus in insanity, is not necessarily an ass; the one who believes all choreic children to be "morally imbecile," a knave; or he who employs statical electricity in his practice, a combination of both.

Injuries of the Spine and Spinal Cord, without Apparent Mechanical Lesion and Nervous Shock, in their Surgical and Medico-Legal Aspects. By HERBERT W. PAGE, M. A., M. C., Cantab. London: J. & A. Churchill, 1883, pp. 374.

Since the coinage of the term "railway spine," much confusion has arisen in neurological nosology, and many liberties have been taken in courts of law with the nomenclature of spinal diseases in particular. The collection of hybrid symptoms described by Mr. Erichsen, and published in his work, are those which every one may have, for, as a rule, they are subjective, and are always convenient in case of an accident, whether it be a fall upon a slippery sidewalk, or a shaking up in a railroad car. Mr. Erichsen's well-written book has undoubtedly been the means by which the treasuries of numerous railroad corporations have been depleted, both abroad and in this country, and cases of alleged "spinal concussion" are becoming more and more frequent. It cannot be disputed, therefore, that many of the vague symptoms which are detailed to sympathetic juries, are commonly trumped up by rogues and imposters.

Mr. Herbert Page now comes forward with a book in which the other side of the question from that considered by Mr. Erichsen, receives careful attention, and he has evidently had the experience, which enables him in a vigorous manner to show the unsubstantial character in most cases of the alleged injuries. Not the least interesting part of the book is the table of two hundred and thirty-four cases collected at random from the records of the courts, and from his own case-book. These records show that quite a large proportion of the litigants either recovered almost immediately after they had obtained a verdict, or when the lawsuit was settled. In these cases, and others which we meet daily, it appears that the real injury, if any exists, is a mental condition of an hysterical nature. It might be properly called "railway hypochondriasis," for the subjective expressions of the patient are peculiarly significant and familiar.

Mr. Page devotes chapters to the neuro-mimeses, the hysterical disturbances, and the examination of the patient; and considers fully the *real* injuries that may originate from spinal shock. In the chapter upon diagnosis, many useful hints are thrown out, and the attention of the reader is called to the unreliability of electrical tests in some cases, especially in those where hysterical anæsthesia exists.

It is to be hoped, now that Mr. Page's excellent work has appeared, that medical men will not be so willing to magnify the trifling nervous ailments of those persons who are only too ready to demand compensation for an injury that is more often one of the mind than the body.

A. Mc L. H.

Editorial Department.

THE COMPARATIVE STUDY OF PSYCHOLOGICAL MEDICINE.

IN taking a survey of the contributions made by alienists of different nations to the domain of psychological medicine during the last century, one cannot help being struck with the fact of the immense preponderance of the French in the direction of original observation and thought. What nation can present such a collection of names as the following : Pinel, Esquirol, Bayle, Calmiel, Foville, Devergie, Baillarger, Falret, Marc, Marcé, Briere de Boismont, Billod, De Lasiauve, Broussais, Tardieu, Ferrus, Leuret, Legrand du Saulle, Moreau, Morel, Voisin, Charcot, Luys, Dagonet, Ball, Magnan, and scores of others younger now but crowding to the front? Many forms of insanity have been first differentiated by these men; many others elucidated which had only been imperfectly known before.

Germany comes next, but far behind. A few of her alienists have done some good work, but the majority have, while some of them writers of voluminous communications and books, done little that really advances the science. However, in this country there is a disposition, arising mostly from ignorance of what the French have done and are doing, to attach undue importance to every little contribution which a German author writes. As a rule, they are obscure, speculative, dogmatic, unpractical.

Next, but far behind the Germans, come the English, who have almost done nothing. Non-restraint is theirs, though the idea came from Pinel, and that is about all. Since Conolly's time

English psychological medicine has been dead, so far as original work is concerned.

Italian alienists are doing wonderfully good work now, and bid fair to attain the very front rank ere many years have passed. There is an earnestness and a thoroughness about their way of approaching a subject, a disposition to study the labors of others in the same direction, which the French and especially the Germans might imitate with advantage.

And the United States? where shall we place ourselves? Six months ago no modern treatise on insanity by an American author existed. Two American works are now before the public. A comprehensive judgment as to the part played by America in the advance of psychiatry will be imperfect without taking these recent publications into account. A careful review of both will be found in our pages.

BRITISH MEDICAL ASSOCIATION.

We have received a circular from the Secretary of the Psychological Section of the British Medical Association, in which we are requested to inform our readers, that the place of meeting is Liverpool, from July 31st to August 3, 1884. "In addition to the usual papers the following special subjects have been selected for discussion:—

"I. The Employment of the Insane. Introduced by Dr. Yellowlees.

"II. Bone Degeneration in the Insane. Introduced by Dr. J. Wigglesworth.

"III. Cerebral Localization in relation to Psychological Medicine. Introduced by Dr. Bevan Lewis, L. R. C. P.

"IV. General Paralysis. Introduced (if time permit) by Dr. J. W. Mickle."

The titles of all papers to be read at the meeting, and notices of intention to join in the debates, on the first three of the special subjects named, should be sent to the address given below, not later than the 30th of June.

Abstracts of papers to be read should be sent not later than July 15th.

In a letter accompanying the circular, from the Secretary, (George E. Shuttleworth, Royal Albert Asylum, Lancaster, England,) it is said, "all American fellow-workers will be cordially welcomed at Liverpool." Let us hope it may become more and more the custom of American neurologists, to attend these deeply interesting meetings.

SPANISH INSANE ASYLUMS.

We devote an unusual amount of space in our present issue to an interesting communication from one of our associate editors concerning the insane asylums of Spain.

Dr. Seguin's observations come to American readers with all the charm and freshness that pertain to a comparatively unworked field for investigation, and for this reason, as well as in view of the assured qualifications of the writer, our readers will welcome this contribution to psychiatric literature.

JOURNAL ILLUSTRATIONS.

Dr. Schmidt, of New Orleans, a frequent and valued contributor to our pages, desirous of adding to the accuracy of his already pre-excellent records of observations with the microscope, has undertaken in the present number of the JOURNAL to represent his findings more faithfully, by acting as his own lithographer.

No lithographer would have made these drawings upon the stone as correctly as the author himself, since, as a rule, the lithographer looks to the general appearance of a drawing rather than to its microscopic details. From the point of view of accurate delineation of the actual microscopic field, these plates are probably the finest ever issued by the JOURNAL.

THE AMERICAN NEUROLOGICAL ASSOCIATION.

THE ninth annual meeting of the American Neurological Asso-

ciation, held in New York City on June 20th, 21st, and 22d, in point of attendance and of scientific work accomplished, was fully up to the standard of its predecessors. A full report of the proceedings is given in our pages.

IN justice to our able collaborators in the "Periscope" department we mention the fact, that owing to unusual demands upon our space it has been necessary to curtail their contributions both in the present and in the previous issue of the JOURNAL.

Periscope.

a.—PHYSIOLOGY OF THE NERVOUS SYSTEM.

ACTION OF THE GALVANIC CURRENT ON THE MOTOR NERVES OF MAN.—Drs. Waller and De Watteville have studied the action of the galvanic current on the motor nerves of man, using three modes of excitation: (1) induction currents; (2) makes and breaks of a continuous current; (3) mechanical stimulation. The electrodes consisted of plates of metal covered with chamois leather, and were applied as follows: One electrode of large area, the "indifferent" electrode, was applied to any convenient part of the body remote from the part explored; the other electrode of small area, the "exploring" or "testing" electrode, was applied to selected points along the course of favorably situated nerves, and the effects at this movable electrode were alone considered. These effects are described under the polar terms "anodic" and "kathodic," without reference to any assumed direction of current in the nerve, for a single experiment suffices to show that the position of the "indifferent" electrode, whether central or peripheral to the exploring electrode, does not in any way influence the results obtained at either pole. The experiments were made on themselves, using the peroneal nerve, close to the tendon of the biceps. The muscular contractions, which give the measure of nerve-excitability, were recorded by a Marey polygraph. The condition which they thought necessary to fulfil throughout their experiments was the co-extension of the points of excitation and of polarization, their reason being that owing to current-diffusion, and consequent establishment of opposite electrodes in the nerve in the immediate neighborhood of the electrode, the electrodonic state is variable in kind, degree, and distribution. This condition is fulfilled by conjoining the testing and polarizing currents in one circuit, and by applying one electrode only to the nerve.

I. *Polar Alterations of Excitability tested by Induction Currents.*—Before using induction currents to judge of alterations effected by the galvanic current, they examined the effects of a long series of induction breaks and makes. Their experiments gave the following results:

1. The height of successive contractions by make or break induction currents approaches more and more gradually to a maximum. The figures show a marked and progressive increase, similar to the "staircase" increase obtained with repeated excitations of the ventricle-apex.

2. The stronger the excitations, the more rapid is the initial increase.

The electrical connections were so arranged that either an induction or galvanic current can be reversed independently of the other by the commutators, and the movable electrode can be made at will kathode or anode of the make or break induction current with or without kathode or anode of the galvanic current.

The polar alterations of excitability tested by the break induction current. The first series of experiments were made with the ordinary arrangement of the coil (an electro-motive force of 2 volts, and a resistance of 1 ohm for the primary circuit), and gave the following results:

1. The effect of the kathode of the break induction current is greater than that of the anode.

2. The effect of the kathode of the break induction current is increased when that kathode is also kathode of the galvanic current.

3. The effect of the anode of the break induction current is increased when that anode is also anode of the galvanic current.

4. The effect of the kathode of the break induction shock is diminished when that kathode is also anode of the galvanic current.

5. The effect of the anode of the break induction shock is diminished when that anode is also kathode of the galvanic current.

6. The increase in the effect of the kathode of the break induction current, when that kathode is also kathode of the galvanic current, is greater than the increase in the effect of the anode of the break induction current when that anode is also anode of the galvanic current.

7. The diminution in the effect of the kathode of the break induction shock, when that kathode is also anode of the galvanic current, is greater than the diminution in the effect of the anode of the break induction current when that anode is also kathode of the galvanic current.

8. With increasing strength of the galvanic current, the effect of the anode of the break induction current, when that anode is also kathode of the galvanic current, diminishes to a minimum, and with further increase in the strength of the galvanic current increases up to and beyond the original normal.

9. With increasing strength of the galvanic current, the effect of the kathode of the break induction current, when that is also anode of the galvanic current, diminishes to a minimum, and with

further increase in the strength of the galvanic current, increases, but not up to the original normal within endurable strength of the galvanic current.

10. The increasing effect of the combined faradic anode and galvanic kathode takes place with a weaker galvanic current than that of the combined induction kathode and galvanic anode; the increase is greater and more rapid in the former case than in the latter.

11. With the ordinary arrangement of the coil used there was no contraction to the make induction current with all combinations and all strengths of the induction and galvanic currents, except the combined anode of the break induction current (*i. e.*, kathode of the make induction current) and kathode of the galvanic current.

II. *Polar Alterations of Excitability during the passage of a Galvanic Current tested by makes and breaks of a Galvanic Current.*

—1. The effect of cathodic make is greater than that of anodic make. 2. The effect of anodic break is greater than that of cathodic break. 3. The effect of cathodic make is increased during the flow of a cathodic current. 4. The effect of anodic make is increased during the flow of an anodic current. 5. The effect of anodic break is diminished during the flow of an anodic current. 6. The effect of cathodic break is diminished during the flow of a cathodic current. 7. The increase in the effect of cathodic make during the flow of a cathodic current is greater than the increase in the effect of an anodic make during the flow of an anodic current. 8. The diminution in the effect of an anodic break during the flow of an anodic current is greater than the diminution in the effect of cathodic break during the flow of a cathodic current.

III. *Polar Alterations of Excitability tested by Mechanical Excitation.*—When the kathode rests on the nerve, the polar region being therefore cathodic, the effect of mechanical excitation is increased; when the anode rests on the nerve, the polar region being therefore anodic, the effect of mechanical excitation is diminished or abolished. On breaking the current the contractions appear in both cases greater than before. During and after the passage of a galvanic current, the alterations in the excitability of the sensory nerves of man follow a course essentially similar to those observed in the motor nerves.—*Philosophical Transactions of the Royal Society*, 1882. Introduction à l'étude de l'électrotonus des nerfs moteurs et sensitifs chez l'homme. Thèse présentée à la Faculté de Médecine de Bâle par Armand De Watteville, 1883.

THE SUMMATION OF IRRITATIONS IN THE SENSORY NERVES OF MAN.—Dr. De Watteville, has made several observations on this subject, and arrived at the following result: The action of irritants along the course of a sensory nerve increases (within certain limits) with their frequency.—*Neurologisches Centralblatt*, No. 7, 1883.

REACTION TIME IN HYPNOTISM.—Dr. G. Stanley Hall has made some observations upon this subject. He found that the time in the abnormal state was reduced from thirty-three to nineteen hundredths of a second.—*Mind*, April, 1883.

EXPERIMENTAL PRODUCTION OF EPILEPSY.—Drs. Pitres and M. Frank relate the following experiment: One of the cerebral hemispheres in a dog is laid bare, and if the surface is irritated there are always produced epileptiform convulsions. Now, if before the irritation the cerebral surface is refrigerated by a spray of ether, then irritation of the cerebral surface will only cause movements, but no convulsions. If contact of the ether with the cerebral surface was prevented by a baudruche, still the cold was sufficient to prevent convulsions.—*Gazette des hôpitaux*, No. 38, 1883.

GALVANIC IRRITATION OF THE AUDITORY NERVE.—Dr. Kiesselbach has made experiments upon himself, and arrived at the conclusion, that the tone generated by the galvanic current corresponds exactly to the resonance tone of the sound-conducting apparatus.—*Pflügers Archiv*, 1883. ISAAC OTT, M. D.

b.—GENERAL PATHOLOGY OF THE NERVOUS SYSTEM.

DIPHThERITIC PARALYSIS.—Mr. Anthon Benson (Dublin) has given the following particulars of a case in a paper on paralysis of some of the ocular muscles after diphtheria (Ophthalmological Society of the United Kingdom). The patient was a girl aged eleven years. The primary throat affection was cured in four weeks. The ciliary muscles were affected in the fifth week, and continued so for about seven weeks. The soft palate was affected in the sixth, and remained so for about two weeks. The hearing was affected in the sixth week, and remained so for about a week. The levatores palpebrarum were affected in the ninth week, and continued so for about one week. The recti externi were affected in the ninth week, two days after the levatores palpebrarum, and remained so for about three weeks. The convergent strabismus and diplopia were present during the tenth week, and lasted for about four days. The weakness of the lower extremities began in the tenth week, and lasted for about three weeks. Numbness and tingling in the feet began about the tenth week, and lasted about the same time as the weakness, three weeks. He regarded paralysis of the ciliary muscle, without alteration of the condition of the iris, as the most frequent implication of the intrinsic muscles of the eye. The seat of the lesion was, he believed, in the brain and spinal cord. He combated Dr. Hughlings Jack-

son's sympathetic theory, on the grounds that the disease of the lenticular ganglion would be accompanied by some change in the action of the pupil. The portion of the nervous system, lesion in which would cause isolated bilateral paralysis of accommodation, was, he thought, Hensen and Voelcker's centre for accommodation in the hinder part of the floor of the third ventricle. The deafness, on which Dr. Jackson laid stress as confirmatory of his theory of disease of the ganglion, was, Mr. Benson thought, more likely to be the result of paresis of the palate with which it was accompanied, than of interference with the nervous supply of the tensor tympani muscle. Paresis of both levatores palpebrarum, and of both external recti muscles, as well as the frequent occurrence of paralysis in distant parts of the body and perverted sensation, all disproved the sympathetic hypothesis.

Post-mortem examination had shown in many cases numerous hemorrhages into the nervous centres, and in some cases a swollen condition of the large motor cells in the anterior cornua of the cord. Such changes, though they might occur in fatal cases, seemed unlikely to be the cause of paralysis, so fugitive and harmless as diphtheritic paralysis usually was. Mr. Benson thought that hemorrhages, larger or smaller, numerous or few, as the case might be, were a more probable cause. Hemorrhages had in several cases been found in diphtheritic paralysis. Hemorrhages might be of any size, and the symptom would be severe in proportion to the extent and position of the extravasation. Small hemorrhages might be absorbed with great rapidity, and have but little if any ill result; large hemorrhages would account for the hemiplegia and other grave forms which were met with at times.—*Brit. Med. Jour.*, No. 1159.

Dr. Hughlings Jackson has since stated (*Brit. Med. Jour.*, No. 1172, p. 1181) that he had been correctly reported to have said that this disease was owing to a morbid affection of the sympathetic system. What he ought to have said, all he really held, was that the ocular, the palatal, and the rarer circulatory symptoms (great slowness of the pulse) of this disease were morbid affections of parts supplied through the ganglia of the sympathetic. He believed the spinal cord, as well as higher parts of the nervous system, to be morbidly affected in the disease. He had not seen a case of so-called diphtherial amaurosis in a stage when the paralysis of the ciliary muscle was complete; in some cases, when accommodation was only weak, he thought the pupils acted well to light, whilst action of them during accommodation was at least imperfect.

PERIODIC RECURRENT PARALYSIS OF OCULAR MUSCLES.—A remarkable case of paralysis of the ocular muscles, coming and going every month simultaneously with the appearance and disappearance of the catamenia, has been recorded by von Hasner (*Centralblatt f. klin. Med.*, No. 21). It occurred in a girl aged

seventeen years, of good physique, who had suffered since her thirteenth year from ptosis of the left upper eyelid, which set in every month, lasted three days, and was accompanied at its commencement by headache and vomiting. Menstruation began at the age of fifteen years, when it was observed that this coincided with the monthly ptosis of the left eye. The author had the opportunity of seeing the patient at the onset of one of her periods, and then made out total palsy of the muscles of the left eye; the second day of the menstrual period witnessed a recurrence of the paralysis of the left eyelid, of the headache, and vomiting. With the cessation of the menses on the third day, a gradual restoration of the movements of the eye took place, the pupils remaining dilated a little while longer.—*Med. Times & Gaz.*, No. 1719.

ICHTHYOSIS IN TABES.—In the *Progrès méd.* (No. 20) MM. Ballet and Dutil gave a short description of an ichthyotic condition of the skin which they have had occasion to observe in tabes, and which they regard as an essential part of the disease, and not as a mere coincidence. Compared with this, the lesions hitherto described,—*e. g.*, herpetic eruptions, ecchymoses, perforating ulcer of the foot, etc.—are to be regarded as mere transitory occurrences. The ichthyosis is slowly developed, probably progressive, and seems to be analogous to the now well-known osseous lesions. The lesion, when present, is always found in those situations in which there has been previously some marked disturbance of sensation, either anæsthesia or hyperæsthesia, or lightning pains. The limbs, and particularly the arms, would seem to be the parts most frequently affected. The falling off, or alteration of the nails, which have already been described, would seem to be merely an example of the same lesion. Disorders of nutrition, such as the one under consideration, accord very well with the idea of a peripheral lesion, which Pierret was the first to recognize.—*Med. Times & Gaz.*, No. 1723.

EYE-SYMPTOMS IN DISEASES OF THE CORD.—Dr. R. W. Gowers, in a paper read before the Ophthalmological Society, London (*British Medical Journal*, No. 1720), confined his remarks to optic nerve atrophy and internal ocular paralysis. "Two general facts," he said, "respecting these symptoms deserve attention. The first is that we must regard them as associations and not effects of the spinal lesion. The evidence of this is : 1. That disease of any nature may exist in any part of the spinal cord without the occurrence of ocular symptoms, if we except the very rare paralysis of the dilators of the pupil in disease of the sympathetic tract in the cervical region. 2. The ocular symptoms, which may be absent when the cord disease is advanced, may exist in extreme degree when each disease is in a very early stage. 3. With the single exception of the sympathetic symp-

toms just mentioned, we know of no anatomical connection or functional mechanism by which the spinal-cord disease can produce the ocular symptoms. The second general fact is that these associated ocular symptoms are always the result of degenerative processes, and their presence shows that the cord disease is essentially degenerative in its nature." In answer to the question, in what proportion of cases of tabes does optic-nerve atrophy occur? he states that his own statistics yield about 20 per cent. of atrophy, which number he thinks has been increased by accidental circumstances, for which reason he estimates 15 per cent. as not far from the truth. The author refers the four muscular actions of the internal muscles of the eye (iris and ciliary muscle), namely: contraction of the ciliary muscle on accommodation, contraction of the sphincter iridis occurring with accommodation, contraction of the sphincter iridis on stimulation of the optic nerve, and contraction of the dilator fibres of the iris on stimulation of the skin. They depend on at least three centres, capable of separate action and liable to separate disease, all of which, probably, lie in a tract beneath the aqueduct of Sylvius, below the front part of the corpora quadrigemina. The most frequent disturbance is loss of reflex action to light, while the pupil contracts on an effort at accommodation (reflex-iridoplegia—Argyle-Robertson phenomenon), often associated, as first pointed out by Erb, with a loss of the dilatation on stimulation of the skin. Next in frequency, but much less common, is paralysis of all the muscles within the eye, both cycloplegia and iridoplegia, the "ophthalmoplegia interna" of Hutchinson. The rarest of all is loss of accommodation, cycloplegia, without loss of reflex action. In 72 cases of primary degenerative ataxy, the author found the internal muscles of the eye were normal in only 6; some defect existed in 66, or 92 per cent.; loss of reflex action to light was the only condition in 48, to which may be added 6 others with very slight action to light, and in 1 case the loss existed in one eye only. Thus, there was a total loss of the light reflex in about two thirds, and either total or partial loss in about three quarters of the whole number of cases. In the remaining 11 (15 per cent. of the whole) the pupil did not contract on an effort at accommodation, and in most of them it was clear that accommodation was also lost. In 6 there was total loss of accommodation and the light reflex, ophthalmoplegia interna. In 2 cases accommodation was lost in one eye and action to light in both. In 10 cases accommodation was lost in both eyes, and light reflex in one only. In 2 cases accommodation was lost, but the action to light was perfect. Of the 72 cases, 25 were in the first stage, 29 in the second, and 18 in the third. The percentage of cases with intra-ocular palsies was, in the first stage 84, in the second 93, and in the third 100. Thus in no case in the third stage were they absent. These facts show that in the majority of cases (four fifths) these ocular complications occur early, but also that cases which escape in the

early stage usually suffer during the subsequent course of the disease. When the light-reflex is good the pupils are often but not invariably small. In two thirds of the cases they were below $2\frac{1}{2}$ mm. in diameter. In the remainder they were 3 mm. to $3\frac{1}{2}$ mm., and occasionally 4 mm. to 5 mm. Inequality in size is common in both conditions, also a slight irregularity in shape.

W. R. BIRDSALL, M.D.

C.—MENTAL PATHOLOGY.

PSYCHOSES IN CHILDHOOD.—Cohn (*Arch. für Kinderheilkunde*, Band iv) says that insanity in childhood, which may make its appearance at any time from birth on, is liable at first to be manifested in motor symptoms. Insanity in a child in whom the sensory-intellectual sphere is not yet developed, shows itself in a furor or frenzy analogous to that of the lower animals. In children in whom the sensory-intellectual sphere is developed, hallucinations present themselves, and later, delusions. The imagination is, however, strongly developed in children in this relation, and upon the question whether the active reproduction of the memory is recognized as such, turns the question of insanity. Under six years, psychoses are exceptional. Hereditary defect plays a strong part in the production of these psychoses, as also the period of puberty. The psychoses are divisible into those developing from the neuroses (chorea, epilepsy, hysteria, etc.), and those not related to these (hallucinatory confusion, hypochondriacal psychoses, melancholia, mania, monomania, and moral insanity). These researches confirm those of Scherpf (Band xvi) and previous authors.

PROLONGED BATHS IN MANIA.—J. Millet (*L' Encéphale*, No. 3, 1882) says that prolonged baths of a temperature of 77° – 93° F., are very efficacious in combating maniacal paroxysms. Their constant effect is to moderate violence, lower temperature, and diminish pulse frequency. These results are more decided and persistent in proportion as the baths are given at lower temperature and for a longer period. The more violent the paroxysms, the colder and more prolonged the bath should be. Feeble constitution, emaciation, malnutrition, and fever, are indications for higher temperature and less duration of the bath. Baths of two to five hours, and of 77° to 82° F., should be administered to violent patients. If the bath be more prolonged, the temperature should be from 82° to 88° , especially if agitation be not excessive. Baths of 88° to 93° should be reserved for moderately excited cases who are emaciated, puny, or enfeebled by fever or malnutrition. While bathing, the head should be covered by cold compresses, frequently renewed, or else a current of cold water should be kept

playing on the head. Baths of 96° F., while modifying the temperature and pulse, ordinarily increase agitation. Baths of and above 98° F., elevate temperature, accelerate pulse and respiration, and when prolonged, are followed by fatigue, and debilitate the organism.

DELIBERATION AS A TEST OF SANITY.—Judge Taylor, of the Wisconsin Supreme Court (*Northwestern Reporter*, vol. xiv, Nos. 13-14) recently decided that : "Instructions to the jury upon the trial of the issue of insanity, that 'if the defendant at the time of the killing was sufficiently sane to deliberate and premeditate a design to effect death, then he was sane within the spirit and meaning of the laws applicable to this case, although he may have been, in truth, subject at the time to insane delusions on other subjects. * * * If he had sufficient power of mind and will to deliberate and premeditate a design to effect death, then you should find that he was sane,'—unexplained, are clearly erroneous, as they set up as an absolute test of sanity the power to deliberate, premeditate, and design. They make the presence of sufficient intelligence in the party accused to form a design to do a criminal act *conclusive* evidence that he is sane, and subject to punishment if he executes such design. The presence of intelligence is by no means an absolute test of sanity, for with intelligence there may be an absence of power to determine properly the true nature and character of the act, its effects upon the subject, and the true responsibility of the action,—a power necessary to control the impulse of the mind and prevent the execution of the thought that possesses it."

EYE-DISEASES AND PSYCHICAL SYMPTOMS IN LOCOMOTOR ATAXIA.—The *Arch. für Psychiatrie*, Band xiii, gives the following data concerning the relations of eye-troubles and locomotor ataxia psychical symptoms. Eighty-nine ataxic patients of the Charité at Berlin were observed with reference to this point. Seventeen presented psychical symptoms; ten were progressive paretics or simple demented; four had delusions of persecution; three were hypochondriacal. Papillary atrophy existed in thirteen per cent. of the whole number; among those who were insane, in thirty-five per cent.; of the sane, only three per cent. were so affected. Paralysis of the oculo-motors was found in forty-seven per cent. of the insane, fifteen per cent. of the sane, and twenty-two per cent. of the whole. From these figures it would seem that the presence of eye-diseases in ataxia indicates an oncoming psychical disease. From an *a priori* pathological standpoint, this was to be expected.

EROTOMANIA.—Under this title Dr. B. Ball (*L' Encéphale*, No. 2, 1883) describes what is really the symptom first

observed in many cases of primary monomania. The condition generally originates at puberty, and first shows itself by the creation of elaborate romances revolving around an adored ideal personage of the opposite sex, usually of a much higher rank than his own, and who is pursued by the patient in a manner tending to persecution. Around these central delusions hallucinations and delusions form. These patients constitute the immense majority of the chronic insane whose psychosis is said to have resulted from disappointed love. The patient is disappointed because his love is of insane origin. The love is usually of a pure nature, and the condition in this respect differs from other nymphomania or satyriasis. Ball's description of this symptom agrees with that of R. L. Parsons (*Journal of Psychological Medicine*, 1876) and others. Other than as a symptom-designation the name scarcely deserves retention in the literature.

TRANSITORY INSANITY.—Engelhorn (*Centralblatt für Nervenheilkunde*, Band iv, No. 21) reports a case of an eleven-year-old boy whose nervous system had been impaired by misery, but in whom there was no hereditary taint, who, in consequence of a threatened legal investigation into a powder explosion which injured him and killed his brother, became temporarily insane, manifesting dreamy, religious, psychical phenomena. This state which lasted an hour, was followed by slumber, and of it the patient was unconscious.

PERIODICITY IN INSANITY AND LUNAR PERIODS.—Koster (*Allgemeine Zeitschrift für Psychiatrie*, Band xxxix) claims that the periodicity of insanity and the cognate neuroses follow a definite law. The periods, either *per se* or in combination, are divisible by seven, and, as a rule, develop unevenly, so that a wave-like increase and decrease are to be noticed; each wave being made up of a variable number of periods. There is a certain amount of parallelism in the periods of exacerbation and remission. The waves represent segments whose duration can be expressed in figures divisible by seven. He is of opinion that these "laws" indicate that the moon exerts an influence. A careful examination of the facts furnished by him fails to make out the case as claimed by him. The lunar periods do influence the human body but not to the extent claimed by Dr. Koster.

FACIAL HEMIATROPHY IN A MONOMANIAC.—Mendel (*Neurologisches Centralblatt*, June 15, 1883) describes a case of facial hemiatrophy occurring in a monomaniac; the diagnosis being complicated by the somatic signs of degeneracy—the congenital facial and bodily asymmetry. The patient was a twenty-eight-year-old girl, and the disease could be traced back to the seventh year.

HOME TREATMENT OF TYPHOMANIA.—Dr. P. M. Wise (*Buffalo Medical Journal*, April, 1883) says that: "It may be laid down as a pretty safe rule to follow, not, of course, without exception, that cases of acute delirious mania should be retained at home until it is safely conclusive that the attack is not a transient one, and that the patient will survive it. Marcé, estimates that one out of three or four survive the attack. In this country the mortality is certainly not as great, but it is large, and it is well to bear this in mind in making a prognosis that will largely influence the disposal of the patient."

THE INSANE AS WITNESSES.—The United States Supreme Court recently decided that: "A lunatic or person affected with insanity is admissible as a witness if he have sufficient understanding to apprehend the obligation of an oath and to be capable of giving a correct account of the matters which he has seen or heard in reference to the questions at issue; and whether he have that understanding is a question to be determined by the Court upon examination of the party himself and any competent witnesses who can speak to the nature and extent of his insanity."

"LIBERATION EPIDEMICS."—Referring to the recent efforts of some lawyers in New York to secure the discharge from an insane asylum of a rich inmate "whom a competent and impartial physician pronounced the most decided lunatic he had ever met," *Harper's Weekly* hopes that the Judge will not dismiss the case without finding out who employed the lawyers, and how much pay the latter are expecting to receive. "If it appears that they employed themselves, a judicial decision on the question whether it is professional for lawyers to beat up the dangerous wards of lunatic asylums in search of rich clients would be of general interest."

SYPHILIS AND PROGRESSIVE PARESIS.—C. Lange (*Hospitals Tidende*, May 23, 1883), after a careful examination of one of the Danish country asylums, concludes that syphilis is not as potent a cause of progressive paresis as has been claimed by Kjellberg, but that on the other hand the opinion, expressed by Lewin and others, that syphilis never produces progressive paresis, is erroneous.

J. G. KIERNAN, M.D.

d.—THERAPEUTICS OF THE NERVOUS SYSTEM.

NERVE-STRETCHING by various methods continues to be widely

employed by physicians and surgeons. As its exact therapeutical value is still undetermined, we record below the recent contributions to this subject.

SUBCUTANEOUS NERVE-STRETCHING IN SCIATICA.—In a paper on this subject, read before the Medical and Chirurgical Society of Maryland at its last annual meeting, Dr. J. W. Chambers, from his own cases and others taken from the journals, draws the following conclusions: 1. That in obstinate cases of sciatic neuralgia the subcutaneous stretching of the sciatic nerve is highly satisfactory. 2. That from effects produced by the subcutaneous method, it is highly probable that all required force can be obtained. This he had also proved by experiments upon the dead subject. 3. The sciatic nerve could by this method be sufficiently stretched to produce anæsthesia. 4. That moderate elongation of a nerve impairs its sensory, and but little, if at all, its motor, functions. 5. That considerable force may be applied to a nerve trunk without seriously impairing its motor functions. 6. That it is not necessary or justifiable to employ more force than just enough to produce anæsthesia.

THE PSYCHICAL ELEMENT IN NERVE-STRETCHING.—Dr. J. G. Kiernan relates the history of a patient suffering from multiple cerebro-spinal sclerosis. During Dr. Kiernan's absence the patient went to a quack who etherized him, made a superficial incision over the clavicle, then assured him that the posterior cord of the brachial plexus had been stretched. The patient improved very much for six months, when the bad symptoms began to return. The improvement is referred, by the reporter, to the imagination. The powerful and direct effect upon the brain of etherization was doubtless the more potent factor.—*Journ. of Neurol. and Psychiat.*, Feb., 1883.

THE SUBJECT OF NERVE-STRETCHING is reviewed, and its results analyzed, by Dr. John Berg, who contributes nothing new.—*Hygeia*, March, 1883.

AN EXPERIMENTAL AND CLINICAL STUDY OF NERVE-STRETCHING has been made by R. Stintzig. He reports his results in a case of spastic spinal paralysis. At the end of four months, the cramps had disappeared, and the gait was much improved. He reports also four cases of tabes, with some improvement, and one case of paralysis agitans with no improvement. König, in reviewing Stintzig's report, refers to fifteen cases of neuralgia operated upon by himself, in most instances with excellent results.—*Centralbl. für Chirurgie*, June 2, 1883.

NERVE-STRETCHING IN PARALYSIS AGITANS.—Möbius relates the history of a case of paralysis agitans of the hemiplegic type, combined with Basedow's disease. Electrical treatment for ten weeks failed to relieve the symptoms of the latter trouble. The three nerves of the left arm which were most affected were then stretched, but with no permanent relief. Möbius cites six other cases where this operation was performed. In one only, that of Auerbach (*Deutsch. med. Wochenschr.*, No. 3, 1882), was permanent relief obtained.—*Memorabilien*, xxviii, No. 3, 1883.

OBSTINATE SCIATICA CURED BY SUBCUTANEOUS NERVE-STRETCHING.—Dr. Fiorani relates the history of a female patient aged forty-nine, who had suffered for a long time from sciatica, and who was permanently relieved by subcutaneous stretching of the nerve. The patient was etherized.—*Annali Univer. di Med.*, Feb., 1883.

NERVE-STRETCHING—NEUROTOMY AND "ARRACHEMENT" IN THE TREATMENT OF NEURALGIAS.—J. Péan calls attention to an additional procedure which he has employed in the surgical treatment of neuralgias. Having exposed the nerve, he stretches it, then cuts it, and seizing the central end endeavors to tear it out. In the case of small nerves which run in bony canals, such as the infra-orbital, inferior dental, etc., he thrusts a hot platinum wire into the canal. Six cases are reported illustrating the efficacy of this method. The success was not permanent in all cases, and it is evident that the method will only apply to the unmixed nerves.—*Gaz. des hôpît.*, No. 12, 1883.

STRETCHING THE FACIAL NERVE FOR TIC CONVULSIVE.—Mr. R. J. Godlee read a paper upon the above subject before the Clinical Society of London, on June 1st. Two cases of his own were reported in which the stretching produced relief for only a few months. Mr. Godlee presented a table of thirteen cases in which this operation had been tried, and in all but one, with only temporary improvement. A patient operated upon by Mr. Southam, of Manchester, had remained well for two years. Mr. Godlee thought that stretching the facial upon a hook was a different thing from stretching the larger nerves upon the finger, since in the latter case a central effect could be produced. Three other cases were referred to by members of the society in which the facial nerve had been stretched with only temporarily good results.—*Lancet*, June 9, 1883.

REMOVAL OF MECKEL'S GANGLION FOR THE RELIEF OF TRIFACIAL NEURALGIA.—Dr. Vanderveer reports two cases of infra-

orbital neuralgia in which, as a last resort, he removed Meckel's ganglion, resection of the nerve having failed. In one case the relief was permanent (eight years). In the other, the pain returned. In this latter case, however, the left eye was diseased, and upon its removal the neuralgia ceased.—*Med. Record*, June 9, 1883.

PARALDEHYDE AS AN HYPNOTIC AND SEDATIVE.—Since the reports of Cervello and of Morselli upon this drug, it has been tried by several other observers.

Albertoni gave it to seven insane patients in large doses (three to nine grammes). His results confirm in the main those of Morselli.—*Riv. di Chim. Med. e Farmac.*, Feb. and March, 1883.

Dr. F. J. B. Quinlan has tried it in some cases with satisfactory results. Details are not given. It acted like chloral, but had no depressing effect.—*Medical Press and Circular*, May 9, 1883.

Dr. C. L. Dana tried it upon twelve cases: nine of insomnia, one of supra-orbital neuralgia, two of nervous irritability. It acted well in seven of the cases of insomnia, and in both of the cases of nervous irritability. It had a temporary anodyne effect. The drug has an undoubtedly hypnotic and feeble anodyne effect. It is not so powerful as chloral, but is quite as disagreeable to the taste. Dr. Dana also administered it in large doses to a dog. It caused sleep, did not much affect the heart, but seriously disturbed the respiration.—*Proc. of N. Y. Practitioners' Society*, June, 1883.

O. Berger has used paraldehyde in eighty cases. In nineteen, sound sleep was produced which lasted several hours; in forty-two, short sleep of one half to two hours followed; in nineteen, no sleep. Bad after-effects were not present, or were slight. The pulse was not much affected. Berger thinks it very valuable in cases where chloral does not act well.—*Breslauer ärztl. Zeit.*, No. 6, 1883.

Dr. J. Brown reports having used paraldehyde in several cases. In doses of m xxx to xl; it caused sleep. The cost and the disagreeable taste were objections.—*Brit. Med. Journal*.

ELECTRO-THERAPEUTICAL NOTES.—In a series of articles entitled electro-therapeutical notes, Dr. B. Frienenreich reports a large number of cases of different forms of neuralgia treated by electricity. Success was obtained in about the usual proportion of cases. Nothing especially new is stated.—*Hospitals-Tidende*, Nos 16, 17, 18, 1883.

GALVANISM IN THE TREATMENT OF HEMICRANIA.—Dr. Gasparini reports successful results in the treatment of migraine by galvanization of the neck. Others have used this method, which on the whole is not a very promising one.—*Gaz. degli Ospitali*, May 30, 1883.

METALLOTHERAPY—HYSTERIA CURED BY ALUMINIUM.—Drs. V. Burq and J. Moricourt report the history of a very obstinate case of hysteria in a girl twenty years of age. She had been treated by a number of eminent professors, including Charcot and Vigouroux, and had experienced a kind of medical Odyssey around Paris. She had frequent hysterical attacks, a very complete hemianæsthesia, with trophic skin troubles. After trying various metals, she was given aluminium externally and internally (in the form of the sulphate), with the result of rapid improvement and cure.—*Gazette des hôpitaux*, June 26, 1883.

TREATMENT OF CEREBRAL HYPERÆMIA AND MENINGITIS BY CUTANEOUS REVULSION.—The results of Dr. Vovard's method of treating meningitis lend additional interest to the similar but independent observations of Baunscheidt and Max Buch. The latter person slightly scarifies the scalp and then rubs in a mixture of equal parts of oil of turpentine and croton oil. By this procedure he obtained cure or great relief in seven cases of chronic cerebral hyperæmia and meningitis, the symptoms being vertigo, headache, visual and motor disturbances, etc.

Buch considers it established that cutaneous excitation of a proper degree of intensity causes increased temperature of the scalp, with lower temperature and vascular constriction of the meningeal vessels.—*Archiv. f. Psych. u. Nervenk.*, xx, 1.

THE USE OF THE MOXA IN CHRONIC AFFECTIONS OF THE SPINAL CORD.—Dr. D. H. Cullimore thinks that peculiar advantages belong to the moxa in the treatment of various forms of sclerosis and chronic myelitis. He reports cases of descending sclerosis, traumatic myelitis, and poliomyelitis, where the moxa was applied twice a week with excellent results. The form of moxa which he uses consists of a piece of brown paper about fifteen inches long and four broad. This is saturated in a solution of nitrate of potash, 3 j. to 5 j. of water. A stronger solution, or one of chlorate of potash, is not advisable, as it is liable to burn with a flame, which should be avoided. This paper is dried and rolled into a cylinder, and is then ready for application. It resembles a short cigar without the tapering ends. To apply it, one end is set on fire and the other placed on the skin in the vicinity of the subjacent disease. The neighboring parts should be protected with alum paper with a central hole, while the degree of heat can be moderated to any degree by the moxa-holder or forceps, and freshened if necessary by blowing upon it. Dr. C. always removes it before the burning part comes in immediate contact with the skin. In this way no scar or sore is ever produced, and it can be reapplied as often as necessary.

The author tries to show on theoretical grounds why the moxa may be superior to other counter-irritants, but he hardly succeeds

in his demonstration; neither is his clinical evidence of a very conclusive character.—*Medical Press and Circ.*, June 6, 1883.

CHOREA TREATED BY CONIUM.—At the Leeds General Infirmary, several cases of chorea have been treated by large doses of conium. It was found:

1. That the drug, to be of any service, must be given in large doses, frequently repeated.

2. That it acted well in the violent cases where the movements were so great as to endanger life, and where chloral and morphia were ineffectual.

3. That, owing to the variability in strength of the preparation, care must be taken in giving the large doses.

It does not appear from the records given that chloral was very thoroughly tried. The value of conium, however, has been established by American observers.—*Lancet*, May 26, 1883.

BROMIDE OF ETHYL IN SOME FUNCTIONAL NERVOUS DISEASES.—Berger, of Breslau, reports the results of his experiments with bromide of ethyl (C_2H_5Br). He states that repeated daily inhalations of twenty to forty drops, in facial neuralgias, in typical migraine, and in many forms of headache, have relieved the pains when other drugs had failed. He had also observed good effects in neurasthenia (one to two grammes two to three times daily), in hysteria major, finally in conditions of psychological exaltation. In epilepsy, it had done little good.

It is a question whether chloroform would not do all that Berger thus claims for bromide of ethyl.—*Bresl. ärztl. Zeitschr.*, No. 8, 1883.

EXTERNAL APPLICATION OF NITRATE OF SILVER IN NEURALGIA AND GOUTY JOINTS.—B. Fronmüller speaks highly of this well-known method of counter-irritation. He moistens the skin over the point of tenderness in a case of neuralgia, rubs the surface with a stick of the nitrate for half a minute, then applies a bandage of salicylic cotton.—*Memorabil.*, No. 1, 1883.

THE THERAPEUTIC USES OF BROMIDE OF CAMPHOR.—In a critical review of this subject, the writer enumerates the various nervous disturbances in which bromide of camphor had been tried. These are chorea, eclampsia, alcoholic tremor, insomnia, epilepsy, hysteria, and various forms of sexual disturbance. It appears that in no single disease has the camphor bromide done more than give "promising" results. That it can do any thing more than the other bromides and camphor alone can do is improbable.—*Le progrès médical*, May 12, 1883.

THE TREATMENT OF BASEDOW'S DISEASE.—Chvostek has written an elaborate article upon this subject, comparing his results (in seventy cases) with those of Dusch, Eulenberg, Meyer, Erb, Rockwell, and others. Galvanism is considered to have furnished the best results when rationally applied. His method is as follows: (1) Galvanization of the neck, ascending current one minute; (2) of the spine, ascending current, anode on fifth dorsal, kathode on upper cervical vertebræ, stabile; (3) feeble stabile transverse galvanization electrodes on mastoid processes and on temples, at least a minute; (4) sometimes local galvanization of the goitre; (5) daily sittings.

The above method is doubtless effective, but it is hard to see why it is so superlatively "rational," as claimed.—*Zeitschrift für Therapie*, No. 8, 1883.
C. L. DANA, M.D.

BOOKS AND PAMPHLETS RECEIVED.

A Practical Treatise on the Diseases of Children. By J. Forsyth Meigs, M.D., and William Pepper, M.D., LL.D. Seventh edition. Philadelphia: P. Blakiston, Son, & Co., 1883.

A Treatise on Therapeutics, Comprising Materia Medica and Toxicology, with Especial Reference to the Application of the Physiological Action of Drugs to Clinical Medicine. By H. C. Wood, M.D., Professor of Materia Medica and Therapeutics, etc., etc.. Fifth edition. Philadelphia: J. B. Lippincott & Co., 1883.

Sexual Impotence in the Male. By William A. Hammond, M.D. etc., etc. New York: Bermingham & Co., 1883.

A Practical Treatise on Impotence, Sterility, and Allied Disorders of the Male Sexual Organs. By Samuel W. Gross, A.M., M.D., LL.D., etc., etc. Second edition. Philadelphia: Henry C. Lea's Son & Co., 1883.

De L'Électricité Statique et de son Emploi en Thérapeutique. Mémoire par le Docteur Paul Vigouroux. Paris: Librairie J. B. Baillière et Fils, 1882.

Die hydroelektrischen Bäder. Kritisch und experimentell auf Grund eigener Untersuchungen bearbeitet von Prof. A. Eulenberg in Berlin. Wien und Leipzig: Urban & Schwarzenberg, 1883.

Electricity in Medicine and Surgery. By Geo. C. Pitzer, M.D. Second edition. St. Louis, Mo., 1883.

Hand-book for Hospitals. No. 32. State Charities Aid Association. New York: G. P. Putnam's Sons, 1883.

Infant Diet. By A. Jacobi, M.D. Revised, enlarged, and adapted to popular use by Mary Putnam Jacobi, M.D. New York : G. P. Putnam's Sons, 1883.

Effects of Noise upon Diseased and Healthy Ears. By D. B. St. John Roosa, M.D. Reprint from the *Archives of Otolaryngology*, June, 1883.

Des Paralysies Générales Spinales à Marche Rapide et Curable par MM. L. Landouzy agrégé, médecin des hôpitaux, et J. Dejerine, médecin des hôpitaux. Extrait *Revue de médecine*, Paris, 1883.

An Examination of Mr. Herbert Spencer's Theory of the Will. By the Rev. W. D. Ground. London, 1883.

Ocular Symptoms as Localizing Symptoms. By S. G. Webber, M.D. Reprint *Boston Medical and Surgical Journal*, March, 1883.

Synchysis Scintillans. By David Webster, M.D. Reprint *Archives of Ophthalmology*, June, 1883.

The Medico-Legal Journal. New York. Vol i, No. 1. June, 1883.

The Opium Habit : Its Treatment by Avena Sativa. By E. H. M. Sell, M.D. Jersey City, 1883.

Report on the Thermal Springs of the Yellowstone National Park. By A. C. Peale. Author's edition. Washington, June 13, 1883.

Twenty-third Annual Report of the Superintendent of the State Asylum for Insane Criminals. Auburn, N. Y., 1882.

The American Psychological Journal. Quarterly. Vol. i, No. 1. Philadelphia : P. Blakiston, Son, & Co., 1883.

Report of Investigation of the Central Kentucky Lunatic Asylum. By the Board of Commissioners. September, 1882.

Sixty-eighth and Sixty-ninth Annual Reports of the Trustees of the Massachusetts General Hospital and McLean Asylum for 1882. Boston, 1883.

And other Reports, Reprints, &c., &c.

FOREIGN EXCHANGES.

Annales Médico-Psychologiques.

Archives de Neurologie.

Archiv fuer Anatomie und Physiologie.

Archiv fuer die Gesamnte Physiologie der Menschen.

Archiv fuer Path. Anatomie, Physiologie, und fuer Klin. Medicin.

Archiv f. Psychiatrie und Nervenkrankheiten.

Brain.
 British Medical Journal.
 Centralblatt f. d. Nervenheilk., Psychiatrie, etc.
 Deutsche Medicinische Wochenschrift.
 Deutsche Archiv f. Geschichte der Medicin.
 Dublin Journal of Medical Sciences.
 Edinburgh Medical Journal.
 Gazzetta degli Ospitali.
 Gazette des Hôpitaux.
 Hospitals-Tidende.
 Hygeia.
 Journal de Médecine et de Chirurgie Pratiques.
 Journal of Mental Sciences.
 Journal of Physiology.
 Le Progrès Médicale.
 Lo Sperimentale.
 L' Encéphale.
 L' Union Médicale du Canada.
 Medizinal-Zeitung.
 Medical Times and Gazette.
 Mind.
 Neurologisches Centralblatt.
 Nordiskt Medicinskt Arkiv.
 Norsk Magazin for Lagensvidenskabens.
 Practitioner.
 Revue de Médecine.
 Revista Clinica di Bologna.
 Rivista Sperimentale di Freniatria.
 Schmidt's Jahrbücher.
 Upsala Lakarefornings Forhandlingar.

DOMESTIC EXCHANGES.

American Journal of Insanity.
 American Journal of Medical Sciences.
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 Buffalo Medical Journal.
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 Cincinnati Lancet and Clinic.
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 Journal of Inebriety.
 Journal of Physiology.
 Maryland Medical Journal.
 Medical and Surgical Reporter.
 Medical News and Abstract.
 Medical Record.

Nashville Journal of Medicine.
New England Medical Monthly.
New Orleans Medical and Surgical Journal.
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Pacific Medical and Surgical Journal.
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Proceedings of the Medical Society of the County of Kings.
Quarterly Epitome of Braithwaite's Retrospect.
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St. Louis Medical and Surgical Journal.
Virginia Medical Monthly.
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THE
Journal
OF
Nervous and Mental Disease.

Original Articles.

NEGLECT OF EAR-SYMPTOMS IN THE DIAG-
NOSIS OF DISEASES OF THE NERVOUS
SYSTEM.*

By G. L. WALTON, M.D.,
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THE great advance in the knowledge of the nervous system, made during the past twenty years, is due not simply to laboratory investigation, but largely to clinical observation and study.

One branch of clinical work seems, however, to have been left far behind in this connection, for the study of the ear attracts but little more interest to-day among neurologists than it did twenty years ago. This is the more remarkable in that otological research itself, while limited for the most part to specialists, occupies at present a front rank in scientific progress.

That the general practitioner should gain an extended knowledge of the ear is perhaps too much to expect, although it is unfortunate for every-day practice that the interest in this line of work should be at such a very low

* Read before the Suffolk District Medical Society, Section for Clinical Medicine, Boston, October 10, 1883.

ebb. Dr. Edward H. Clarke,¹ and more recently Dr. Woakes,² have, for example, commented upon the lack of knowledge and interest which allows a practitioner to ignore aural symptoms in the exanthemata, and to inform the convalescent from typhoid fever that deafness is a favorable sign; the fact being that a little knowledge of the pathology of the ear, a little forethought, and a moderate degree of experience might have prevented, for example, a hyperæmia from becoming a purulent inflammation, causing such destruction of tissue as to render the ear useless as an organ of special sense, to say nothing of the dangers from extension of the process.

It is not, however, the object of the present paper to discuss the gaps in the general practitioner's knowledge, but to consider briefly the interest which the study of otology should have for the neurologist, and for the practitioner interested in neurology.

It has now become so much a part of the neurologist's education to acquaint himself with the examination of the *eye*, and of his practice to interest himself in it, that the diagnosis of cerebral tumor or locomotor ataxia is rarely made without examination of the fundus oculi, while the mention of "blindness" as a symptom in cerebral disease, unaccompanied by a description of the eyes and the exact nature of the defective vision, would call down severe criticism. Almost every number of the neurological journals contains a discussion either of the course of the fibres of the optic nerve or of some other question regarding the physiology or pathology of the eye.

The result of this enthusiastic study is that as large a part perhaps of neurological advance is due to ophthalmological research as to any one branch of investigation.

¹ *Am. Jour. Med. Sciences*, January, 1858.

² "Deafness, Giddiness, and Noises in the Head." Edward Woakes, M.D., London, 1879.

Now, the situation of the optic nerve is such as to render it peculiarly susceptible to alteration from cerebral lesion, while the relation of the auditory nerve to the brain is not such as to warrant the assumption that the study of its functions would throw an equal amount of light upon nervous pathology. It is also true that the optic nerve is generally eligible for direct examination, while the auditory nerve is not. Notwithstanding these facts, none would claim that the neurologist has nothing to gain from the study of the ear, and it is highly probable that systematic examination of the hearing and of the ear in cerebral disease, whether deafness is suspected or not, would, like the examination of the sight and the eye, not only aid much in actual diagnosis, but add greatly to our knowledge of the central nervous system.

As a recent example of the value of adding aural to ophthalmological study in diagnosing central nervous disease may be cited the subject of hysteria. Thanks in greatest measure to the efforts of Prof. Charcot and his pupils, this disease has been rescued from the uncertainty and contempt of former times, and has been found as worthy of scientific study as any other, and once subjected to systematic analysis it repays us by solving physiological problems with an accuracy not to be attained in laboratory research.

Prior to the studies at the Salpêtrière hysterical blindness was considered a vague symptom unworthy of careful investigation. It has now been known for some time that this, like the other functional anæsthesias, is subject to given laws and offers marked and individual characteristics, so that amblyopia, with concentric retraction of the field of vision and loss of certain colors has become a pathognomonic symptom. In a similar way hysterical deafness, long noticed but not investigated, has now been shown to follow

equally fixed laws, the hearing through the bone disappearing before that through the air, and that for high before that for middle tones.¹ The writer has already found a knowledge of these peculiarities of great practical value, in connection with other symptoms, in establishing the diagnosis of functional anæsthesia,² a diagnosis of importance, not only with regard to treatment and prognosis, but particularly in a medico-legal point of view in cases of so-called "railway spine," as pointed out recently by Dr. J. J. Putnam.³ With regard to the physiological interest of these facts, assuming as we may fairly do that the deafness is due in these cases to disturbance in the cerebral centres, the analogy at once appears between hysterical and senile deafness. In the latter also the hearing through the bone and for high tones disappears first. Previous explanation of these peculiarities, as, for example, by the assumption of impaired bone-conduction in old age, has never been satisfactory; and the same peculiarities occurring in young girls, with no evidence of alteration in the conducting media, but with other evidences of anæsthesia of central origin, tends to show that the hearing for high tones and that through the bone disappear first during impairment of the auditory centres, simply because these are the sounds of which those centres are the least tenacious.

It will not be out of place at this point to observe that the importance of testing the hearing for high tones, as proposed by Dr. Clarence J. Blake,⁴ has indeed hardly at-

¹ Deafness in hysterical hemianæsthesia. *Brain*, No. xx, 1883; also *Verhandlungen der physiologischen Gesellschaft zu Berlin*, Feb. 9, 1883.

² In one case, published in the *Archives of Medicine*, Aug., 1883, the hearing was examined with König's rods at intervals during convalescence, and it was found that the scale of notes audible on the affected side gradually rose until the rod of 30,000 vibrations could be heard on this side, to that of 35,000 on the other. The diagnosis in this case was settled by the disappearance of the deafness on application of an electro-magnet.

³ *Boston Med. and Surg. Journal*, Sept. 6, 1883.

⁴ Summary of the results of experiments on the perception of high musical tones. *Trans. Am. Otological Soc.*, 1872. Diagnostic value of high musical tones. *Trans. Am. Otological Soc.*, 1873.

tracted sufficient attention, even among otologists, though already, in 1877, the "méthode de Blake" was described by Guerder¹ as furnishing the *key* to diagnosis between deafness resulting from lesion of the nervous apparatus and that resulting from impaired transmission. Dr. Blake has shown, by testing for high tones after incision of the membrana tympani, that the inner ear is capable of conveying, and the brain of perceiving, normally, at least 80,000 vibrations, although the ordinary limit while the membrane is intact may be placed at 40,000 vibrations. It is certainly remarkable that the high tones have received so little attention, and that the König's rods are so little in general use for diagnosis.

The attention of the writer was particularly drawn some time ago to the lack of attention given the ear in diagnosing cerebral disease, while looking through the neurological journals. Attention having been attracted to the subject, the search for cases of cerebral disease has been continued at some length through leading German, French, English, and American journals, simply to observe how often note is taken of the aural symptoms, and when taken, how often systematic examination of the ear is made.

The result has not been satisfactory. The ocular symptoms are rarely neglected; the condition of the fundus is almost invariably reported where it can throw the least light on the nature of the lesion. It is needless to say that the statement is rarely found that defective vision exists, without such information as tends to show whether the difficulty is due, for instance, to opacity of the lens, optic neuritis, or refractive irregularity.

The contrast between this desirable accuracy and the loose statements with regard to the aural symptoms, not so noticeable in the single reports, becomes absurd when a large number are passed in review.

¹ *Annales des maladies de l'oreille, du larynx, et des organes connexes.*

The cases in which ear-symptoms are neglected in the diagnosis of diseases of the nervous system may be classed as follows: (1) The cases in which no note whatever is taken of the condition of the hearing, although the presence or absence of deafness would prove of diagnostic value; (2) the cases in which deafness is mentioned as a symptom in disease of the nervous system, without particulars as to its nature and degree, and without sufficient examination of the ear to eliminate defective transmission of sound.

(1) With regard to the first class of cases, those in which the hearing is totally neglected, this is by far the most numerous, and comprises perhaps the large majority of cases of cerebral lesion, such as tumor, hemorrhage, and abscess, to say nothing of hysteria and allied disturbances. Why the auditory nerve in particular should be left out in the otherwise systematic analysis of such cases is not clear, and is only to be explained by the fact that attention has never been especially called to its importance. The fact that the examination of the hearing and of the ears is difficult, is certainly no reason for leaving them altogether out of consideration in reporting cases where they would be of value.

The presence or absence of deafness is, for example, of the utmost importance in diagnosing lesion of the pons or medulla oblongata, or of the cerebellum. As an illustration of this fact, Seymour has recently reported a case of cerebellar tumor pressing on the pons,¹ in which absolute deafness (unilateral), both for sounds conveyed by air and for those conveyed by the skull, added greatly to the certainty of the diagnosis, which was afterward corroborated by post-mortem examination.

Although this case unfortunately comes under the second class just mentioned, in that no examination of the ear

¹ *Boston Med. and Surg. Journal*, August 30, 1883.

was made, the probabilities were greatly in favor of the tumor as the origin of the deafness, and the case is quoted as a step in the right direction, chiefly because Nothnagel, in his standard work on the diagnosis of cerebral disease (edition of 1879), has stated that no authentic case is on record of deafness resulting from cerebellar disease.¹ The same author, in considering lesions of the pons, remarks,² that considering the situation of the auditory nerve it is curious that deafness is rarely found as a symptom. The fact of its non-mention in a long series of cases he regards as proof of its rarity, for, he says, it is hardly probable that a marked degree of deafness could go unnoticed. This by no means follows, for deafness is a symptom which, in the majority of cases, unless carefully sought for, escapes the notice, not only of the patient himself, but of the medical practitioner, many persons going through life unaware of the fact that they are almost totally deaf in one ear. This point will be alluded to again farther on. By far the most probable explanation of the seeming rarity of deafness as a symptom in tumors and hemorrhages in the pons and cerebellum is, that the hearing is rarely examined in such cases.

(2) Examination of the second class of cases (those in which deafness is noticed but not accompanied by description of its degree and nature, or by examination of the ear) reveals the lack of interest—not to say lack of knowledge—prevalent in this branch of symptomatology.

Omitting the cases reported by otologists, a case is rarely found in which a systematic examination of the ear and of the hearing is made, so that in many cases the reader is even left in doubt as to whether the deafness is really due to the cerebral lesion, or, perhaps, to a plug of cerumen, or catarrh

¹ "Topische Diagnostik der Gehirnkrankheiten," von Dr. Hermann Nothnagel, Berlin, 1879, S. 595.

² *Ibid.*, S. 154.

of the middle ear. This neglect is the more noticeable in that the writers include observers otherwise most accurate, for it seems to be only the most careful clinicians who test the hearing at all. By these, the symptom deafness is repeatedly mentioned in connection with the various disturbances of the central nervous system—such as locomotor ataxia, trauma, new growth, and hysteria,—without the least record of the hearing for different tones, or for that through the bone, and often with either no examination of the ears or a very superficial one. In some exceptionally careful reports appears the statement, “membranes normal,” as if this fact absolutely established the central origin of the deafness, whereas it is well known to otologists that an apparently normal membrana tympani may have beyond it a middle ear so far injured by catarrhal inflammation as to cause marked loss of hearing.¹ If, in such a case, the hearing through the bone and that for different tones is unimpaired, a central origin for the deafness is eliminated, and even if the hearing through the bone is lost, the fact is not yet established that the nervous auditory mechanism is affected, for catarrh of the middle ear, though generally apparently increasing the intensity of sounds conveyed by the bone, by preventing the passage outward of the vibrations, sometimes suspends the hearing for sounds conveyed in this way (probably by causing ankylosis of the stapes, thus preventing the vibration of the labyrinthine fluid).

Even when disease of the outer and middle ear has been eliminated, we are by no means justified in jumping at once to the cerebral auditory centres, or even to the auditory fibres in the brain, for there still remain the intricacies of the labyrinth, and the course of the auditory nerve to the brain, either of which may be the seat of lesions causing

¹ Urbantschitsch: “Traite des maladies de l'oreille,” trad. franc., 1881, p. 267.

loss of auditory function. In consideration of these facts how little scientific is the report, for example, of a case of locomotor ataxia with the symptom "deafness" mentioned without further particulars, and how unfortunate that the diagnosis of probable traumatic lesion of Ferrier's auditory centre should be made, as in a case recently reported in the journal *Brain*, with no examination of the ear until some months after recovery (which in the case alluded to, by the way, revealed old purulent inflammation of the middle ear), and no more careful test for the hearing at any time than that for the watch by ear and through the skull, a test so untrustworthy as to be discarded by many otologists.

Amongst other inaccuracies may be noticed the fact that the patient's own statement is evidently often relied on in eliminating the question of deafness as a symptom. Now, the patient's opinion on this point, even when he has noticed it, is generally unreliable, a deafness from catarrh or cerumen of several years' standing being often considered by the patient to have commenced a few months previously. This illustrates the well-known fact, that a considerable degree of deafness may go unnoticed for an indefinite time; and, indeed, provided it be unilateral, the deafness may become total, and yet remain unperceived, until suddenly revealed by accident, as by rolling over upon the well ear in bed.

These facts render the custom of questioning the patient with regard to his hearing of very little value as compared with objective tests.

Even the tests for hearing by the voice, tuning-fork, and rods, are subject to such inaccuracies as to require careful study, considerable experience, and repetition in the given case. For example, the patient generally understands so well what is said to him by gesture, look, and the motion of the lips, as to render the voice test unreliable unless these

sources of error are removed. Deaf children are often brought to the aural clinics who not only deceive their parents, who are generally willing to be deceived, but who would deceive the medical practitioner unless he exercised great care, because they turn so quickly when a noise is made that it seems as if they must have heard it. The same children will, perhaps, take absolutely no notice of the shrillest sound if made stealthily behind the head by an experimenter who remembers that the field of vision extends laterally over not far from 180 degrees when the head remains quiet, and much farther when it is continually in motion.

These single instances of the many sources of error familiar to otologists, will serve to remind us of the need of careful study before making scientific reports of the hearing power in cerebral disease.

As an example of lack of care among neurologists in eliminating trouble in the ear itself, Lucae,¹ as early as 1866, exhibited the peripheral auditory apparatus of two patients who had died from locomotor ataxia, demonstrating the real seat of the deafness, and calling attention to the fact that deafness in this disease should not be attributed to central disturbance without careful examination of the ears. Since that time, however, deafness has been in many cases reported in connection with locomotor ataxia, sometimes with no examination, and sometimes with but the most casual examination of the ears, and Pierret² has even suggested, on the most insufficient evidence, that degeneration of the auditory nerve is one of the early symptoms of this disease, the fact being probably that if peripheral disturbance were carefully eliminated, according to Lucae's suggestion, the cases of deafness from locomotor

¹ *Verhandl. der Berl. med. Gesellsch.*, Bd. i, p. 127, 1866.

² *Revue mensuelle*, février, 1877.

ataxia would be reduced to a minimum. Careful search by the writer through a series of forty cases has, indeed, failed to reveal a single case in which central deafness could be established, though the majority of the patients were more or less deaf.

As another example, may be cited the frequency of the diagnosis and treatment of "Menière's disease" without examination of the ear, while, in fact, the so-called Menière's complex of symptoms (deafness, noises in the ear, nausea, and giddiness, with or without tendency to fall in a particular direction) occurs so frequently in connection with disease of the external and middle ear, that the cases are comparatively rare in which otologists refer these troubles to lesion of the auditory nerve or its terminations.

It is not the object of this paper to contend that the skill of an otologist should be added to the already varied requirements for neurological training. It is rather to offer the suggestion that the ear deserves an interest at least approximating that accorded to the eye in the diagnosis of nervous diseases. It is certainly not too much to expect that every practitioner, whether neurologist or not, should either refer cases to a specialist or practise the examination of the ear and hearing to such an extent as to avail himself at least of the aid gained from the appearance of the membranes, the patency of the Eustachian tubes, and the hearing by air and bone by the various tests, as well as the hearing for different tones, before making a diagnosis of lesion of the nervous auditory apparatus. And further, it is to be hoped that the time is not far distant when reports of cerebral disease ignoring the condition of the hearing and the examination of the ears, will be considered as incomplete as they are at present without record of the condition of the eyes.

HYSTERIA: A STUDY IN PSYCHOLOGY.*

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THE HOME FOR CRIPPLED CHILDREN, WEST PHILADELPHIA.

AS an anatomical unity the nervous system does not present to the superficial observer such features as seem to render difficult the localization in it of a well-marked disease. The simplest type of the nerve organization is nothing more than a ganglion with an afferent and efferent nerve: and even in the most perfect nerve-structure of the whole developmental scale we find but the differentiation of this primitive form. To enter into a discussion of this wondrous organon, developed from such a simple source, is not within the scope of this paper. Suffice it to say that here are exhibited the most curious phenomena of the created world: the functions of sensibility and motion, the maintenance of respiration and circulation, the promptings of hunger, thirst, and generation; the guidance and equalization, as it were, of the more vegetative processes; and, far above all, the special senses and the mind of man. From such a rapid view of the many functions of the nervous system, we may gain at once a much-enlarged idea of the manifestations of disease which it may display; of their countless varieties and combinations; and may pass at once to the details of the subject in hand. We have to dwell in this paper upon one of the most prevalent and important diseases to be found in the meshwork of

* Read, in part, before the West Philadelphia Medical Society, Sept. 5, 1882.

this almost inscrutable system, for hysteria has been truly called "the great neurosis."

It is especially true of this disease, that it has excited controversy as to its real seat—whether it be of the brain, the cord, or only secondary at all in the nervous system, having its prime seat in some bodily organ, as the uterus and ovaries. The literature presents the variety of opinion. The ancients,¹ of course, give us something fanciful. Hippocrates² said it was caused by the womb rising toward the stomach. Paul of Ægina attributed it to putrid semen in the womb, but, *per contra*, Hippocrates found it mostly in antiquated virgins and young widows. Aretæus represented the womb as an animal within an animal, wandering about, attracted by fragrant things and fleeing from fetid: while Plato says the womb is desirous of generation; if unfruitful it turns indignant, wanders about the body, and stops the passage of the spirits and respiration. The idea of uterine or ovarian origin is by no means confined to the ancients. Laycock and Tuke especially refer to this; most modern authors give it a certain importance, and Charcot, who has seen symptoms as wonderful as mesmerism itself, claims that he can stop a severe fit with unconsciousness by simple pressure on the ovary. Rosenthal has found the chief fault in the cord, but his statement has seemed to me theoretical and obscure. Conolly believes the disease comes from a susceptibility of the nervous system, which, like Skey's definition—irritation of the nerve-centres—is so vague as to mean almost nothing. Reynolds finds an alteration of the relations of the several nervous functions. Now, the difficulty with all these definitions—and many other authors have also been examined—is just this: that they do not explain satisfactorily the most interesting

¹ Copland's Dictionary: art. "Hysteria."

² Cox's Epitome.

symptoms of these cases. I have often been puzzled, both in practice and in study, to reconcile symptoms the most obvious with any known affection of the cord, the nerves, the liver, the stomach, the ovary, or the womb.

It happened once to the writer to be called to a case which has some points in illustration. The summons came about midnight. The patient was a strong, young Irishman, a married man, who was reported, by a breathless messenger, to be in violent convulsion. The sex and age of the patient quieted any suspicion, and, although the hour was late and the distance long, no time was lost in reaching him. He was found lying on the floor in the middle of a room, breathing somewhat heavily, and apparently unconscious. All spasm had stopped. The case, on the face of it, had somewhat the appearance of an apoplexy, especially as the man was stout and plethoric. There was no response to questions, no muscular resistance—but there was sensibility of the eye. This condition of the eye, as well as a certain tremulousness of the lids, excited careful attention. Then the old mother—for the room was full of friends—asked if it were possible her son could have lock-jaw. She was asked: “Why should he have lock-jaw?” She replied that “he had a wound in his leg.” This was examined, and found to be a small punctured wound, nearly a week old, and healing kindly. It seems he had been treated for this at a public hospital, where he had been kept one night. He had complained since of what he feared were lock-jaw symptoms, especially on the day of his fit. The man was now gently shaken, encouraged, and assured he had no lock-jaw. After some persuasion he rallied himself a little, and seemed like one who had been helped to throw off some hideous incubus. He was advised to dismiss his friends and go to bed.

This case testifies to several facts, viz.: that hysterical symptoms are not always due to the womb or ovaries; secondly, that they cannot sometimes be linked to any bodily organ; and, lastly, that they are in most cases, if not *all*, due to abnormal states of consciousness. This brings us directly to a statement of the subject of this paper, which is to unfold some of the psychological features of hysteria.

I must acknowledge that the subject has not been ignored by the many writers on this disease; but I will say that I have not yet seen the book in which it is given the prominence it deserves and demands. While we have the elaborations of Charcot, with every fit divided into its epochs, each with its appropriate gesture and speech, as in a well-acted play, and graced with pictures of naked women in the most remarkable and bizarre postures; while we have the scientific teachings of Brodie and Paget, carefully pointing out the grounds for a diagnosis between a true and a false hip-joint disease; and the scholarly essays of Conolly, Copland, and Reynolds, with their long array of physical symptoms;—while we have all these, with but a slight description of the mental condition of these unfortunates, we are almost forced to the conclusion that hysteria, as a psychosis, has no place in medical literature, and, like King Lear, when the “mother rises in his throat,” exclaim:

“*Hysterica passio* : down, thou climbing sorrow,
Thy element 's below !”

I desire to quote a few of the best opinions from writers who refer to the mental condition of hysteria. Dr. George Cheyne,¹ an old writer, describes the condition as follows: “a deep and fixed melancholy, wandering and delusory images on the brain, and instability and unsettledness in all the intellectual operations; loss of memory, despondency,

¹ “The English Malady.”

horror, and despair; sometimes unaccountable fits of laughing, apparent joy, leaping, and dancing, at other times of crying, grief, and anguish, and these generally terminate in hypochondriacal or hysterical fits (I mean convulsive ones)." Dr. Skey,¹ speaking of the entire phenomena of the disease, says the mind "appears to exercise some mysterious or occult influence over them." Wilks says² "the higher nerve-centres are in abeyance." Dr. Weir Mitchell induced his patients to give him autobiographical letters: thus the patient unfolds the mysteries of the disease better in some respects than could a physician. One of these patients confessed a desire for sympathy and to be important; she induced vomiting until it became habitual and uncontrollable. Another case—a sensible girl—was overtaken with prostration of strength and *feared* something to be the matter, or that it would be. Maudsley³ says "there is always some degree of moral perversion. This increases until it swallows up the other symptoms." Sydenham⁴ has surpassed all in his word-painting. "It is the nature of this disease," he says, "to be attended with an incurable despair: so that they cannot bear with patience to be told that there are any hopes at all of their recovery, easily imagining that they are liable to all the miseries that can befall mankind, and presaging the worst evils to themselves. Upon the least occasion also, they indulge terror, anger, jealousy, distrust, and other hateful passions; and abhor joy and hope and cheerfulness * * * they observe no mean in any thing and are constant only to inconstancy * * * this instant they propose doing one thing, and the next change their mind and enter upon something contrary to it, but without finishing it; so unsettled is their mind that they

¹ *Op. cit.*

² "Dis. Nerv. Syst."

³ "Body and Mind," etc.

⁴ The entire works, etc.; "Newly-made English," etc., Lond., 1763.

are never at rest. * * * Nor is this the case only in furious maniacs, but even in those who, excepting these violent passions, are judicious persons, and for profoundness of thought and solidity of speech greatly excel those whose minds are never disturbed by these tormenting thoughts. So that the observation of Aristotle is just, who asserts that *melancholy persons are the most ingenious.*" This last observation has much foundation in fact. It is related of Burton, the author of the "Anatomy of Melancholy," a monument of curious learning and quaint wisdom, that he was himself the victim of the gloomy mood which he dissected. The idea is also supported by the fits of the prophet Mahomet, which were accompanied by depression of spirits, tremblings, and a sort of trance, with a tendency to suicide, which fits do not seem to have been epileptic in character.¹ Some oppose this view, however, of the pure hysteric temperament; as Paget, who says, that such patients "have seldom average, level, and evenly-balanced minds." I know that it may be said that some of these descriptions are not of hysteria, but of different cases of melancholy; to which it may be answered, that in a *psychological* study the fact is forced upon us, that the relation of hysteria and hypochondria to insanity in its different forms of melancholy and mania is often more of degree than of kind.

In most of our authorities, as quoted, we can chiefly notice an absence of the terms of modern psychology, which has come to be a well-recognized science: which terms, it seems to me, cannot well be dispensed with in any effort which is made to describe either the normal or abnormal actions of the mind. Thus, I have spoken of consciousness, which may be defined as a condition of self-knowledge in relation to the exterior world. For instance,

¹ Dr. Sprenger's account: foot-note—Gibbon's "Decline and Fall."

a man who is unconscious has no knowledge whatever of self; while one who is in part conscious, as in delirium and dreaming, has but a partial knowledge of self and its relations; and herein is his main trouble, that he joins his own identity to the delusions which his mind involuntarily forms. If he were conscious his mind might still form its involuntary, or automatic, images, but as he could then maintain his identity as *apart* from, and in true relation to, such idle day-dreams, they would not affect him. But again, if being cognizant of the true unreality of these images, his mind is yet of that unstable quality as to be moved thereby to strong emotion, or to be rendered unable to act with force and will-power in the real affairs of life, he is not in a normal but an abnormal state of self-knowledge in relation to the exterior world. This healthful consciousness is, as it were, many-sided: or, to be more exact, it has many modes of action. Thus: first, there is *sensational* consciousness, or knowledge of impressions from the outside world. There are then the two states which follow upon sensation, and alternate very frequently with one another—the *intellectual* and *emotional* modes of consciousness. There is then, as it were, ever back of these and ready to start forward into action, the consciousness of *memory*. Finally, and in a certain relation of superiority, there is the *volitional* consciousness.¹ To the physiologist it might seem appropriate to call these so many *centres* of action, and in the application of these facts to the illustration of hysteria it would be very convenient to do so; because there can be no doubt that these diverse modes of action are often so nearly distinct that they do appear to be so many individual centres of nerve-activity with afferent and efferent paths,—just as in the simple typical ganglion,—and it is often this very isolation of func-

¹ Carpenter's "Physiology."

tion, and lack of due coördination of brain-actions that give to this disease its most characteristic marks. Thus, while I have preferred the psychological terms as more exact, there would be no objection to accept from physiology this term "nerve-centre" as a convenient one with which to handle the subject. The use of this term, too, might connect very well the psychology of the subject with the physiology of the rest of the nervous system, which I may state, briefly for our purpose, as follows:—(1) The ganglia of general excitability, situate mostly in the cord, with which too may be classed the sympathetic, which are the seats of the simplest nerve activity, the excito-motor phenomena. These are in their nature simple in the extreme—an impression on the periphery conveyed to the centre and reflected through the efferent path as a mere motion, which is always the same; *i. e.*, there has been no differentiation or elaboration of result. (2) The ganglia of special sensibility, in which are seen the sensori-motor reflexes, and in which there has been a very wonderful specialization of function. (3) The gray masses of the cerebrum, in which this specialization has reached its highest degree, not only being closely connected with the excito- and sensori-motor centres, but being itself the seat of a new and complex process, the ideo-motor activity. It is at this point that we leave the physiological for the psychological processes—only, however, for the sake of more exact terms, and not as though we enter a new domain. Thus far, too, we look upon the nervous system as a mechanical arrangement evolving certain reflex actions. This is a correct view, as far as it goes, and very important for our subject: because it is in this very mechanical or reflex action of not only the lower ganglia in the cord and the ganglia of special sensation, but also of the very highest *centres* of the brain, that we find many of the characteristics

of hysteria. In other words, the sphere of this disease is more especially in the automatic action of the brain and cord.

Whether or no that consciousness of which mention has been made has its own *nerve-centre*, apart from these other excito-, sensori-, and ideo-motor processes, is a subject of some dispute. That it is distinct from the first two seems certain; but that it has a distinct material seat apart from mental activity is not so sure. It is rather a peculiar potency of the mind, directly manifesting itself in will-power; it is the *ego*, and I have been led to regard it as a condition of brain-activity, with its own proper states, as described above. Its action is volitional; all other is reflex or automatic.

To trace fully the relation of the different mental *automata* to the hysteric state would be an arduous task and one not possible here to be accomplished. We can, however, give some indication of its scope and essential features as follows—only premising that much of this reasoning is *a priori*, because it is difficult to obtain data and examples of the innermost workings of the minds of those, whose very ailment is chiefly an ignorance of their own minds and its hidden and uncontrolled motions. And it does seem that to obtain such data ought to be more the object of those who make the care of the mind a specialty.

Take first the intellect, or faculty of *ideation*. Its automatic and very despotic action is seen in the formation and influence of dominant or "fixed ideas." Prof. Bain¹ instances the case of a mother in a state of panic regarding a supposed danger to her child. "The force that moves her is not volition; it resides in the circles of mere intellect, inflamed into undue excitement on one idea. * * * The healthy and regular action of the will * * * would work

¹ "The Senses and Intellect," p. 343.

for subduing the state of panic so as to leave the mind in a cool and collected condition, able to estimate the danger at its exact amount." Although this case could be more appropriately referred to the emotional type, still let it stand as an example of cerebral reflex action. This author also enlarges upon undue susceptibility to the influence of an idea, and says that insanity is the culmination of this peculiarity. I believe that hysteria is a far more frequent result; that the mind, stirred to its depths by a ceaseless ebb and flow of enduring thought, whose presence is only shown to the observer by its remote effects on the motor or sensory apparatus, is, indeed, in a condition of high ideomotor reflex: that the patient, who can no more analyze the psychology of this state than her observing friends, is helpless to avert it herself or describe it to others. This is, perhaps, the history of fixed ideas—the inhibitory action of which is, without doubt, the starting cause of most, if not all, cases of hysterical paralysis. Again, we have the force of *habit*. Habit is a widely-prevalent and most important automatic, or unconscious, action of mind. "Education," says Huxley,¹ "is the formation of habits * * * so that acts which at first required conscious effort, eventually became unconscious and mechanical." This healthy action may be changed into an unhealthy one in these abnormal states of mind. The woman who learns to vomit in order to simulate disease, or the one who teaches herself, with acquired dexterity, to perform a histrionic convulsion for the same laudable purpose, gradually sets a going a machine whose elaborations in time can, no doubt, surprise herself, much less her physicians. What Sir William Hamilton² describes as the formation of habit would, no doubt, unfold many such acquired hysteric dexterities

¹ Address on "Descartes' Discourse," etc.

² "Metaphysics," Bowen's Abridgt., p. 253.

could we but follow them from the start. "At first," says he, "and before the habit is acquired, every act is slow, and we are conscious of the effort of deliberation, choice, and volition; by degrees the mind proceeds with less vacillation and uncertainty; at length the acts become secure and precise: in proportion as this takes place, the velocity of the procedure is increased, and as this acceleration rises, the individual acts drop one by one from consciousness." What could be more probable than that a good hysteric subject *en rapport* with her physician, after having become the victim of such a bad automaton, and with her mind under the domination of a "fixed idea," or in expectant attention as to what was wanted of her, should display a series of grotesque actions and speeches, as in the cases of M. Charcot, and be persistently unconscious of, or at least unreasoning about, much else but the *effects*?

It has not, perhaps, sufficiently appeared to many persons that *all emotion* is an automatic action of mind, and that many of its effects upon the body are really quite independent of volition. Thus, the familiar act of weeping not only begins unbidden, but can often not be controlled without great effort; least of all can it be started *ab initio* by any act of will. And in those few persons who seem to have the power to weep at will, it would probably be found that the will only acts by the aid of association of ideas to recall an emotional state which, in turn, causes the tears to flow. When speaking of the emotions Luys¹ says: "They are inspired and experienced, not commanded by the intervention of the human personality." The hysteric mind is a favorite field for the manifestation of the great prowess of the emotions; and I think that the suspicion under which such patients often fall, and the harsh criticism to

¹ "The Brain and its Functions."

which they are subject, would be much changed but for one peculiarity of the hysteric mind. This peculiarity is *secretiveness*. Laycock thinks¹ this is a psychic trait natural to woman, and all females of the lower animals, and is derived from their peculiar functions of generation and care of their young. But it seems to me to have a different significance as found in these patients. It is, in fact, a characteristic of many disorders of the mind: men, as well as women, brood over imaginary trouble, and support for a long while in silence the harassing, nagging, and demoralizing wear and tear of a suppressed emotion or passion. Joy lifts up its voice, but grief, anger, and disappointment have something which they keep forever to themselves. It seems probable that this comes from a sense of mental weakness, an indisposition to reveal to others what the person thinks would be considered an infirmity of character. If this be true of emotions which are bred of some real unfortunate experience, how much more likely would the law hold good of those peculiar morbid processes, unfounded upon facts, which the patient feels would meet with misjudgment and ridicule; or of those particular bodily states, as the sexual feelings, which every instinct of modesty and conventionalism dictates must be suppressed? I am quite certain that one case of very lively opisthotonos, which once came under notice in the person of a young unmarried woman who had spent the evening at a dance with her lover, was caused by suppressed sexual excitement, and was in no respect a mere simulated fit; neither was it a fit that could be controlled by the patient in her then condition. The force of morbid mental impressions on the body, and the difficulty of eliciting a statement of them, must be familiar to every alienist. The writer has seen one patient, a neurasthenic lady, with enlarged thyroid and dis-

¹ *Op. cit.*

trressing subjective symptoms in the head, with furred tongue, loss of appetite, and insomnia, whose eras of depression were always associated with active emotional cerebration; and who, upon being encouraged to give free descriptions of the train of morbid impressions, and having them fully discussed and diverted, has often for a time improved in many of her bodily symptoms. The force of emotion is not to be overlooked, as a pathological factor, and physicians would do well to be metaphysicians in the cases of some of their most valuable patients. Strong emotion has been sometimes known to kill, from the time when old Eli fell and died at the news of the disasters to Israel, to this modern 19th cycle when, as related by Tuke,¹ the natives of the Sandwich Islands have been known to die convulsed before the charms and incantations of a bogus sorcerer. But it is not these isolated and striking instances that confirm a precept as much as the consideration of the very many patients in whose minds a hidden and uncontrolled emotional activity, of a chronic kind, causes upon delicate brain-structure that material alteration or molecular change which determines a wreck of the mind.

It has seemed to us that some of the phenomena of *sensori-motor* reflex, as observed in the rather obscure condition called "hypnotism,"² have a distinct relation to the hysteric mind. These reflexes are, perhaps, as purely automatic as any which it is possible to conceive, and are not so wonderful as the more enthusiastic wizards of this art would have the public to believe. They are, in fact, a part of the regular daily workings of the human mechanism: it is thus we walk and perform countless manœuvres of every-day life. The essential feature of all these reflexes is an *abstraction* of mind from the process; a release of the centres of

¹ *Op. cit.*

² For a review of "hypnotism" see article by Dr. Charles K. Mills. *Am. Journ. Med. Sci.*, Jan., 1882.

special and general sensibility from all conscious inhibition. It is a well-known fact that all persons cannot be "hypnotized"; in other words, those whose "wits are about them," who have full volition and a *conscious* purpose of examining the process to which they are about to be subjected, are the ones who naturally do not fall into that complex state—part wonder, part absence of mind, and, sometimes, part sleep—which seems to be the state of hypnotism. It is in those who yield themselves up with "expectant attention" to the influence of another; therefore in those whose state of pure volitional consciousness can be in a manner quieted, annulled, abstracted from them by the legerdemain of a more nimble and commanding personality, that we find these exhibitions. The child that gazes, open-eyed and open-mouthed, at some unusual street pageant is in the first stage at least of hypnotism; and those persons who unconsciously mimic unusual motions and gestures in others are in very much the same state. The close alliance, if not identity, of this hypnotic state with some hysteric conditions may be observed in the tender age of childhood, at which period especially we meet with cases of mimicry of chorea and other convulsive diseases; also in the violent fits of laughter of an hysteric woman, which may be excited by the least sign of mirth in a by-stander. But the most marked examples are in those combined associations of certain perceptions with certain movements—in the nature, somewhat, of the association of ideas in the higher faculties, but distinct from them. The illustrious Dr. Johnson, it is said, could not pass a post in the street without tapping it with his finger; if he did so pass, by an effort of will, he was immediately so uneasy that he must need return to the neglected post. If such a moral philosopher could not resist the tyranny of this absurd sensori-motor reflex, how can we expect that those more feeble organizations, in whom the

state of volitional consciousness is habitually disturbed, should escape these associated movements? This condition will sometimes cause prolonged nervous or muscular tension, in which cases it is probable that what began as a mere sensori-motor reflex is converted into an ideo-motor reflex. This explains some cases of hysterical contracture. The most remarkable case which the literature has to show, is recorded by Dr. B. W. Richardson¹ of a young lady who saw in India a religious devotee with his leg flexed upon his body and fastened there. In a few hours the young lady was found with her leg in a similar position, and this contracture persisted until after she had been brought to London, and then disappeared as suddenly as it came. No effort of conscious purpose could have maintained the leg in such a posture for an hour.

I desire now to state briefly some of the most important *bodily* symptoms of this disease, and their relations to, and dependence upon, abnormal states of the mind. The subject has been necessarily involved more or less in the preceding portion of the paper, but it can be specially evolved only by taking it in its turn: and it can here be little more than mapped out for the help of future study and amplification, as the limits will not admit of all the curious and instructive detail which this subject can supply. "Corporeal expression," says Sir Charles Bell,² "has a wide range, from the graceful inclination of the head and neck of the Apollo, to the convulsive struggle of the Laocoön." This corporeal expression, the effect of mind upon body, is especially to be noted in this disease, which has been already indicated to be in essence a central lesion; *i. e.*, diverse abnormal states of consciousness. "Every conscious state," says Bain,³ "is accompanied with

¹ "Diseases of Modern Life."

² "Anatomy of Expression."

³ *Op. cit.*, p. 255.

a diffused wave of effects, muscular and organic, which are stronger according as the feeling is more intense." The fact is particularly to be noted, that while the *intermediate* steps of the processes may be obscured the results may be definite enough; as is also the case in some of the most familiar of physiological acts—as, for instance, the blush, the tear, or the laugh. Who has explained with certainty the exact mechanism of these processes, or their relative significance,—being in themselves meaningless,—and yet who doubts their connection with passions and emotions of the mind?

The first symptom I mention is *pain*. Pain is an altered, not a merely increased, sensation; it is, moreover, an affection of the periphery of a nerve, and has, as it were, to be translated by the brain before properly becoming *a pain*. This is true of all sensations, before becoming converted into ideas; and here we come upon the whole subject of the formation of ideas from sensations. A child born blind was couched in after-years by Chesselden,¹ and restored to sight. A round object being held at some distance from the child, he raised his hand to his eye to take it. The mere sensation of sight had not yet been translated by the boy into any idea of distance. Now, as this boy had *no idea* of distance, and as any other two persons would probably have had *different* ideas as to that particular distance,—just as different brains form different ideas from the same sensations,—so will different persons make much or little out of the same painful sensation. This is a trite fact: we know that some people bear pain stoically, others shrink from its every display. This subject is capable of much amplification. There is still another point in this connection. This is what is called the memory of pain: it is supposed that the brain having been once

¹ Phil. Tr., Lond., 1719-33, vii, 491-93.

affected by severe pain conjures up the ghost of it, as it were. We must imagine that the brain-cells have been affected permanently by the former sensation, and are in a constant erethism. Again, and perhaps closely allied to the last condition, is the ability of many persons to excite an uneasy sensation by directing the mind intently upon one particular part of the body. I think we may also allow space for the anticipation of pain; a brooding over what may happen being a common state of mind. It must not be forgotten, however, that so-called hysteric pain may be sometimes genuine neuralgia; a condition which Anstie¹ describes as mal-nutrition of the posterior nerve-roots, and likely enough to happen in broken-down women.

One of the gravest symptoms of hysteria is *paralysis*. In ordinary paralysis from structural change the obstruction is somewhere in the periphery, or at least between the centre of volition and the part to be moved—as a clot in the ventricles or at the base of the brain, or a degeneration in the cord. In hysteria it is no doubt these very centres of volition—the will—which is principally affected, and perhaps primarily so in all cases. The will does not act; it is inhibited by either some dominant idea—as spoken of in the former part of this paper—or by a degree of mal-nutrition, which is sometimes general and may have been the starting-point of the trouble. Paget² expresses it thus: “The patients say ‘*I cannot*’; it looks like ‘*I will not*’; but it is ‘*I cannot will*.’” The state to which a patient can be brought by this disease in this one respect is astounding, and has been described by writers on the subject. They lie bed-ridden, often emaciated, the affected limb wasted, the skin hypersensitive, the mind listless and the moral functions of it

¹ “Neuralgia and its Counterfeits.”

² *Op. cit.*

utterly in riot. They tyrannize over a household, discourage one doctor after another, and with their display of fictitious, but especially their real, ailments, are both vexatious and pitiable. These are often the cases of chronic invalidism whose cures form a part of the curiosities of medical literature, or even serve the purposes of religious credulity and enthusiasm. Tanner¹ relates the case of Elizabeth Fancourt, who was cured in a moment by the prayers of a pious friend; she had evidently been suffering from hysterical hip-joint disease and wasting of the limbs—and in this instance was the creature of a sudden emotional impulse. Emmet² gives two remarkable cases. In one of these the patient had been in bed five years, and yet by tact and finesse, getting her interested first in autographs and so on, the doctor succeeded in bringing her to the dinner-table before he left the house. These brilliant results are, of course, rare.

Another symptom is *convulsion*. This can be divided into the voluntary and involuntary. The voluntary, or purposive, convulsions are such as emanate from the conscious mind itself. Here are the simulated or foolish fits into which women sometimes throw themselves for the purpose of exciting sympathy or making a scene. I am convinced that a large number of "hysteric fits" are of this class: these are the patients who are cured by the mention of the hot iron to the back or the exhibition of an emetic. The involuntary forms of convulsion are more important. They happen in more sensible persons, and some of them are probably akin to starts, gestures, and other forcible or violent expressions of passions and states of mind. A person wrings the hands, beats the breast, stamps upon the floor in an agony of grief or apprehension; and if terror is added

¹ "Practice of Medicine."

² "Princ. and Prac. of Gynæc."

he trembles violently. It is certainly no great stretch of the imagination to suppose that great fear, anger, or some kindred passion acting upon the sensitive nervous organization of a delicate woman or child should throw them into a convulsion. This, in fact, we know happens. Darwin¹ believes that in certain excited states of the brain so much nerve-force is liberated that muscular action is almost inevitable. He instances the lashing of the cat's tail as she watches her prey, and the vibrations of the serpent's tail when excited; also the case of an Australian native who, being terrified, threw his arms wildly over his head for no apparent purpose. The excito-motor reflexes of the cord may possibly take on true convulsive activity if released from the control of the will, which, as already said, is apt to be weak or in abeyance in this disease. Increased temperature is stated by Rosenthal² to be always present in the great fits of epilepsy and tetanus, but absent in those of hysteria.

I must pass hastily over a few other symptoms. *Wasting* is a symptom often present, and no doubt often dependent on disuse, according to the well-known physiological law. Another law also has its bearing on this condition; *i. e.*, the tendency of mere functional disorder to pass into structural. There are said to be occasionally organic changes found in cord, nerve, or muscle. The possibility of voluntary starvation must not be overlooked. That this can be carried to great extremes is well known. The most interesting case, and one which proved fatal, is that of the Welsh Fasting Girl, related by Taylor.³ She had been exhibited as a curiosity, as having abstained from food for two years. She lay in bed, decorated as a bride, and visited by hundreds of persons. She was at last watched by four

¹ "Expression of Emotion," etc.

² *Op. cit.*

³ "Manual of Medical Jurisprudence."

trained nurses from Guy's Hospital, with the result that she died of voluntary starvation on the ninth day.

The affections of the genito-urinary organs are almost legion. In hysteria there is apt to be a large flow of limpid urine after a paroxysm; and we know that this sometimes happens after emotional excitement—a fact which has been well hit off by Burns in his “Holy Willie's Prayer.” The opposite condition—retention of urine, or ischuria—sometimes happens. Vicarious urination is said to be a feature, but most of the cases are open to grave doubt. Thus, a New England physician contributed a description to the *American Journal*, nearly fifty years ago, of a case in which the urine ran from the ear, eye, nose, stomach, breast, and navel: “the urine spirted from the navel as from a fountain.” This woman was not properly watched, and was, no doubt, malingering; as others have been known to swallow their urine and then vomit it. Charcot refers to this case, but refuses to give the name of the author—so absurd does he consider it. I found the article, which is by a Dr. Arnold, of Rhode Island. Sexual excitement is often associated, as before said, with these abnormal states of the mind.

Aphonia is a curious result of hysteria, and perhaps more difficult than the others to explain by any direct resort to the condition of the cerebral faculties. I can recall two cases, both of them sensible girls who wanted to get well, in whom no emotional or true hysteric state appeared to remain, and who required a long course of electricity. I think, however, the fault must be here, too, in some defect of the will, or some dominant idea; for, as in some emotional states, *vox faucibus hæsit*, the voice clings to the throat.

This paper has been intended to be an introduction to the psychological study of an important disorder. There

are no instruments of precision, no probes or clinical mirrors that can fathom or illumine the depths and recesses of the mind ; nay, more, there are as yet but few cases so accurately recorded as to be of value in illustration. Mental science invites the attention still of many learned physicians.

NUTRITIVE ALTERATIONS AND DEFORMITY OF FINGERS FROM PRESSURE ON NERVES IN THE AXILLA.

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(With one wood-cut.)

The subject of this communication sustained a fall about two years ago while walking, was picked up insensible, and carried to her home. She relates that when consciousness returned she suffered great pain in her left shoulder, arm, and fingers, and was incapable of moving the limb. She was confined to her house for five months, during all of which time she suffered much pain—principally about the shoulder. The hand, during this time, did not give her much pain, and she cannot recall that she ever suffered any “burning” pain in it. She came to the surgical clinic of the University of Maryland, in June, 1883, to obtain relief from severe pain in the left shoulder. The surgeon discovered an irreducible luxation of the head of the left humerus downward into the axilla, and the case was transferred to the clinic on nervous diseases. Upon examination I found that she could endure but little handling about the shoulder-joint, and that even moderate pressure above the clavicle caused considerable pain. Pain is almost constant about the shoulder. The left hand, especially the ring and little finger, feels numb, but she complains of no decided pain in it. Movements of the elbow-joint unimpaired; supination imperfect; movements of wrist stiff. Hand can be only partially closed because of stiffness in the last phalangeal joints. Slight appearance of deformity about the wrist, but there is no history of direct injury to it, nor does the most careful examination discover the signs of there having been a fracture of radius or ulna. The fingers stand apart as seen in the cut,

and can, by voluntary effort, be only partially and with difficulty approached to each other. Slight atrophy of muscles about shoulder and arm ; none in forearm. Muscles of hand but little atrophied.



As seen in the cut, all the fingers showed marked nutritive changes, the little and ring fingers most of all ; the thumb was not affected ; the little finger was deformed, its joints stiff ; the skin of the little and ring fingers was pale, glossy, and as if stretched. The same condition of the skin was observed in the last phalanx of the other fingers, but in a less degree. The nails of all the fingers were affected, showing lateral and longitudinal

curvature. That of the little finger was much distorted, and, as it were, crumpled.

Sensation was by no means lost in the fingers, but blunted, for tactile impressions, for heat and cold, and for the faradic current—especially in the little and ring. Stroking the ring or little finger, even lightly, caused a feeling of uneasiness that irresistibly impelled the patient to pluck the hand away.

The muscles of the forearm showed normal electric reaction. The interossei replied feebly to both the faradic and galvanic currents when strong. In the hypothenar region there was little or no reply to either current. Palpation along the course of the principal nerves of the arm revealed no enlargement of them, and elicited no pain.

The case seems to me worthy of notice, in view of the decided nutritive changes in a part in which there was from first to last so little pain, or paræsthesia. The burning pain, so very commonly the accompaniment of “glossy skin,” if it was present at any time, did not attract the attention of the patient sufficiently to be retained in her memory. The motor nerves, too, appear to have been but slightly affected.

No doubt the case must be classed as a “neuritis” excited by the pressure of the head of the humerus on the branches of the brachial plexus, but it is interesting to observe that it wants the classic features of neuritis as it is generally described. The deformity of the joints and trophic alterations of the skin crept on so slowly, and with such slight subjective symptoms in the part affected, that the patient can give no account of their commencement or progress. The case seems to me to speak in favor of trophic, apart from sensitive, or motor, fibres, and may also suggest the greater vulnerability of the trophic fibres under certain circumstances. Again, a point is suggested as to whether the trophic effects are caused by an irritation directly transmitted to the tissues, or whether the irritation is first sent centripetally and then reflected from nerve-centres to peripheral parts.

NEUROLOGICAL SPECIALISM.

PRESIDENTIAL ADDRESS DELIVERED AT THE ANNUAL MEETING
OF THE NEW YORK NEUROLOGICAL SOCIETY, MAY 1, 1883.

By WILLIAM J. MORTON, M.D.,
NEW YORK.

GENTLEMEN:—I enter upon the duties which you have assigned to me, deeply conscious of the compliment and the confidence conveyed in your vote, and in full reliance upon that active and earnest support that has always been characteristic of the proceedings of this Society.

In accordance with the precedent which demands on this evening "the addresses of the retiring and newly elected Presidents," I venture to bring before you some general remarks relating to our Society,—its past, its future, its aims, and its position as the exponent of a vigorous and special offshoot of general medicine.

Of the past I shall say but little. Our age is not yet so venerable as to present charms whose enumeration shall obliterate the novelty of our present. Our records do not yet invite the antiquary to rehearse in detail our earlier achievements.

But, for the benefit of those who have recently joined our ranks, I may note, in passing, several prominent points in our career.

We are disposed to believe that an unusual degree of success has thus far attended our efforts. With us hard

work and good fortune have often auspiciously joined hands. Not the least notable of the events that contributed to strengthen our position were the dissolution of the rival Society of Neurology and Electrology in 1877, and the hearty invitation that was issued to its members to unite with us. In response to this invitation a large accession of working talent was added to our already active organization. The divided interests thus happily joined have since flowed on in comparatively uninterrupted harmony.

The position of the Neurological Society has been from the very outset unique among our metropolitan societies. Its work has been a double and parallel one. It has been the forum for a remarkable amount of scientific work, and it has been a powerful agent in the formation and guidance of public opinion upon subjects about which it has the special right to speak. I would not for a moment be accused of magnifying our own merits,—allowable though it be for an incorporated organization of many persons to speak of itself in terms denied by conventional modesty to the individual,—but I am sure I speak within the facts, and in the spirit of that just pride which we all feel in our work, when I say that we deserve and enjoy a well-earned reputation for industry and devotion to the specialty of neuropathology.

In merely glancing over the titles and recalling the character of the scientific productions that have been brought before us in formal papers during the last nine years, the observer cannot fail to be impressed with the amount and merit of the work that has been accomplished; and not the least profitable of our proceedings have been the animated and instructive discussions which have been called forth. In this latter respect, the proceedings of the Society have offered to its members a peculiar interest. As a rule, in medical societies a few men do the actual work. One of

these few, for instance, reads a paper, exhaustive, carefully prepared, and probably presenting debatable original ideas; this paper is attentively listened to; several members arise, make complimentary corroborative remarks, or relate a "similar case," and there the subject ends, and the paper is passed on to its routine place in medical journals. But this has not been the practice in the Neurological Society, and herein lies one secret of its vitality and interest to its members; individuality is well marked; opinions differ widely, and those who hold them sustain them warmly. And it may be true that there sometimes arises a slight acerbity born of animated attrition, but this is quickly obliterated by the common interest.

Our Society has a reputation of being "lively." This criticism we regard as the highest compliment, for to be "lively" is to be working, comparing ideas, progressing; our emulation is friendly and healthy. May the dust of burnt-out opinions never settle down upon its proceedings and clog its energy; may it never become conservative, but rather press on and excite competitive intellectual activity to the fullest bent of which the individual is capable.

In looking over the titles of the papers that have been already read before our Society (an average of about one and a half to each meeting, to say nothing of presentation of cases and specimens), the attention is attracted by the diversity of topics treated. Each year's work is a fair reflection of the history of neurological advance, and in this connection I cannot refrain from expressing a keen regret that our work is not accessible in the shape of printed transactions.

And added to the proper satisfaction that we may gain from a retrospect of our routine work, there also remains to us a higher pleasure in recalling the initiative share that we have taken in the great movement of amelioration in

the treatment of the insane, which is now occupying public attention. In 1878 there was voiced by this Society ideas that have been powerful in preventing great injustice to these unfortunates. The movement, signalized in its early stages by single and scattered shots from various quarters, opened into a steady fire against the oppressors of the insane from the moment that the Neurological Society entered into the contest. The history of our share in this work should not be forgotten. At the stated meeting of March, 1870, our retiring President read a paper upon "Reform in Scientific Psychiatry," and a Committee on "Asylum Abuses," consisting of Drs. Wm. A. Hammond, E. C. Seguin, E. C. Spitzka, W. J. Morton, L. C. Gray, T. A. McBride, and E. C. Harwood, was appointed to make a report. The committee drew up a memorial to the Legislature of the State of New York, praying for an inquiry into the management of our insane asylums. This memorial was referred to the Committee on Public Health. The members of the Committee on Asylum Abuses will probably never forget their first experience on coming in contact with a political medical ring, as shameless as it was powerful by reason of its alliance with low politics.

The report of the Senate Committee in response to the memorial was an unexampled specimen of trickery and mendacity. But a breach in the Chinese wall of seclusion, secrecy, and tyranny which surrounded the management of the insane in many asylums was effected. Our committee was pertinacious and undaunted, and within two years had the pleasure of knowing that a second Senate report, embracing all that they had claimed, had been presented to the Senate; though, strange to say, thanks to methods known to Albany politics, this report has never been printed and made public.

But the proceedings in the Legislature are now compara-

tively unimportant. That great engine of reform, public opinion, has begun its irresistible movements. The press records blows struck on every hand at mediævalism in the treatment of the insane. Legislative committees are being appointed, asylum after asylum is being investigated. In some asylums there exists all that can be expected, under the present system, even from the most humane of superintendents; in others, the blighting influence of officialism is exposed; while in others again, unspeakable barbarities are unearthed.

And, most encouraging of all, advanced minds among the superintendents of asylums themselves are attaining to the consciousness that in them resides the prerogative of bringing about the very reforms which the public now demands. The Neurological Society touched the spring that set the wheels of reform in motion. It may now calmly watch the result.

But I turn from our past to our future. Even the brief retrospect in which we have indulged is sufficient to throw into clear light the golden thread of continuity of purpose in our history which seems to forecast the way to us who take up and carry on the strand. We are the inheritors of a worthy patrimony, and it becomes our fortunate lot to contribute, so far as lies within our power and capacity, to the dignity and value of the inheritance that our predecessors have accumulated in the archives of this society.

As I glance over our list of seventy or more active members I am encouraged to expect an unusual amount of neurological work during the coming year. I see the names of veterans in the service who may be always relied upon to furnish papers; the names of other members, who, great as are their talents, possess a still greater inertia, against which must be brought a certain amount of urging. I see also the names of our modest members, and those of newly

fledged neurologists now coming forward to receive their accolade. From all these we expect assistance. We have only to look about us at our meetings to recognize the great interest in the cause of neurological work, which only steadfastly awaits an opportunity to express itself. The Society says to all its members: We expect your earnest support.

It is really a serious mission that we are engaged in. All along the line, the world over, neurological medicine is pushing forward its work in a manner that proclaims it to be, of all the specialties, the most advanced, the most active, the most fruitful in results to humanity. True, some of this advance is due to the labors of those who are by no means specialists in the treatment of diseases of the nervous system,—but is rather a contribution to general medicine; the fact still remains that the work is done in the department of neurology, and that its results are greeted, fostered, utilized, and perpetuated beneath the banner of specialism. In Germany and France the study of the symptoms, the causes, the pathology, and the treatment of diseases of the nervous system has long held a strongly accentuated position, derived from the special labors of a long line of eminent workers in this field, whose contributions to the subject have now become classical in medical literature. Of England and, in more recent times, of Italy, the same remark may be made. And never in our own country has the interest in this subject been more generally diffused throughout the medical profession than at present. The truth of this assertion may be verified from many points of view. Our medical periodical literature contains numerically more observations relating to nervous diseases than ever before, and, what is of more consequence, these contributions are of a higher order of merit.

In the various cities of the Union a number of physicians are taking up the study as a specialty and are devoting much labor to it.

Medical schools are awakening to the importance of offering to their students advanced instruction in this department, while the post-graduate schools and the polyclinics contribute notably to a clearer definition of this branch of medicine. In the midst of this generally increasing interest, organized and equipped for the work, and recognized as a leading special society, it is peculiarly appropriate that the Neurological Society should assert itself with renewed ardor, and should concentrate within the systematized fold of its labors all the neurological work that is now being done in this city. In this connection it is not amiss to refer to the fact that two or three of our members, whose labors have always been a credit to the Society, have expressed the opinion, that work in neurology could be more advantageously performed in the medical sections of the New York Academy of Medicine. And since neurology, according to them, is to be relegated to section work in the Academy, the same holds true, of course, of laryngology, ophthalmology, otology, and so on. The effect of this plan, successfully carried out, would be to break up in turn all the special societies in the city—to merge all into a common level of general society work. Identity and individuality are to be lost in an official machine of wheel within wheel, revolving for the glory and advance of—what?—not of specialism but of general medicine. Surely this would be a retrograde step. For years past the specialties have been branching off from the parent stem in the face of great opposition from general medicine; they have planted themselves firmly on their own pedestals, and have a fixed position, and respect, and confidence. The constant tendency of the last twenty years in medicine has been toward decentralization—in other words, specialism; and now we are asked to go back on our tracks and centralize. It is undoubtedly true that an act of amalgamation of the kind

proposed would benefit neither general medicine nor neurology. For, owing to the very multiplicity of the facts of medicine to-day, large bodies become entangled in their own lines, or neutralize by want of unity of direction the efforts of individuals. Smaller bodies like our own concentrate their energies, and in their very unity of purpose find a stimulus to exertion unknown to the larger body.

I have alluded more at length to this question than would have been worth while did it not concern other special societies in common with our own. The danger needs but to be recognized to be averted. Members of the Academy, as many of us are, and holding it in highest esteem, we yet feel that in this endeavoring to absorb into itself under its several sections the various special societies of this city, the Academy is undertaking a task beyond its powers and beyond its capacity of adequate control. Certain it is, that the opinions expressed and now carried into effect by the two or three late members alluded to will find little sympathy in this body.

I have so frequently referred to the fact that the members of this Society were engaged in the study of a particular and sharply defined branch of medical science, that I feel that a few words defining our position in this respect may well be embraced in these general remarks.

The principle that governs the necessity of studying the diseases of the nervous system by themselves, is the same principle that has compelled specialization in other branches of medicine.

Medical art and science of to-day have expanded to enormous proportions; numberless investigators are at work; allied sciences are introduced; facts are daily added to the sum of medical knowledge, until it has become impossible for a human being even of extraordinary intellectual power to grasp the new facts, arrange them in his

mind, or utilize them in practice. Time was, and that not thirty years ago, when the general practitioner of good ability conscientiously felt that he could make himself master of all medical science. To-day, few, if any, can pretend to keep pace with medical progress. One by one a branch has shot off the parent stem, dependent yet independent. The very attempt to keep up in the race of accumulating knowledge begat hypocrisy and discouragement. Specialism is, then, the substitution of precision for vagueness—of a concrete differential diagnosis for an abstract supposition; it is the forced acknowledgment that the average human mind cannot practically grasp all of medical science; it is, in short, the protest of knowledge against ignorance, and it now becomes, indeed, a matter of conscience to specialize medical labors according to the tasks or talents of the physician. And specialists themselves have even begun to again subdivide. There is, no doubt, a danger to medicine in thus becoming cut into smaller and still smaller sections. The eye, it is said, will become microscopic—the mental reach of comprehension correspondingly narrowed. This is the evil of specialism. It must be faced, for the dissection now begun will go on. It is but the natural law of the division of labor,—true of commerce, and now of law and medicine.

The danger alluded to is however more superficial than real. The conscientious specialist never forgets his relations to general medicine. It is well understood that he should have had a good preliminary experience in general practice. There can be no sympathy with the immature jump from a medical school into a specialty.

Neurology is but following the general tendency of the times, and with better right than many other specialties, for it offers to its followers a field for investigations so vast, so fruitful, so impossible of exhaustion, that even if they

should desire it they are precluded from equally extended investigations into other branches of medicine.

From a purely practical point of view, it is, then, proper, nay, it is even compulsory, to the neurologist to be a specialist. But the remark has often been made that neurology is less a specialty than other specialties; that it is an unnecessary subdivision of medicine, since the morbid processes that go on in the nervous tissue are either themselves the real basis of other diseases, or, on the other hand, are caused by diseases in other parts; our boundary lines, it is claimed, are quite too shifting, and may be so construed as to include almost all of general medicine. This criticism is no more nor less than a criticism upon the defects of our present nosology or classification of diseases. If it shall ever become demonstrated that affections of the nerves are the essential basis of all diseases, why, so much the better for the neurologist; he has been upon the right track. If, on the other hand, there are diseases (and no one doubts that there are) peculiar to the nervous tissue, then, for practical reasons already given, the neurologist is justified in devoting his exclusive attention to these diseases.

But the best basis for a separation of the affections of the nervous system from other diseases is from the stand-point of symptomatology. The study of symptoms alone has led to the discovery of many of the most important diseases known to medical science. By this method, Duchenne discovered locomotor ataxia, progressive muscular atrophy, pseudo-hypertrophic paralysis, and other affections. True, physiology lent its aid, and pathology verified, but symptomatology furnished the lines of demarcation that erected the unknown affection into the dignity of a recognizable and a predicable disease. I would by no means underrate the value of the facts contributed to

neuro-pathology by pathological anatomy or by physiology. On the contrary, a thorough study of these branches is essential to the clinician. A familiarity with the methods that reveal to us the secrets, so far as this is possible, of the morbid processes that are associated with nervous diseases, may be our guide in our efforts to correlate the symptoms of our patient, but they should not constitute the chief end and aim of the neurologist. Familiar with the fundamental laws of neuro-anatomy, physiology, and pathology, let symptomatology—in other words, clinical study—be his main pursuit and interest. In this direction also lies the greatest amount of material for clinical study; for those suffering from nervous affections are many, while but few of them will be ever available for examination by scalpel or microscope. And we are right in emphasizing the position of neurology in medicine, and in devoting our best energies to its success. To the sick, the subdivision of labor is an advantage, since, other things being equal, this means skilled labor. Clearly, the field for work is all that the neurologist can attend to—it is certainly more than the general practitioner can keep up with.

It is, indeed, a great pity, in my opinion, that there are not more specialists than there now are in all branches of medicine.

I have but a word more to say, and that word a passing tribute to a deceased member. Time is laying his hand upon all of us, but death has rarely been with us. One of our number—Dr. Geo. M. Beard—has lately passed away. A man, singular, but honest and strong in his singularities. His intellectual capacities were far above the average; the phases of his mental activity were distinctly original. He wrote much—possibly too much. A critical friend has said that his fame would have been more enduring if he had written five books instead of fifty. His generalizations

were often too sweeping and too hastily arrived at. On the other hand, they were often strikingly accurate; and when subsequently some few of them, relating to the Gospel of Relaxation and other subjects, fell from the lips of Mr. Herbert Spencer, they were thought to be words of golden truth. Again, Dr. Beard attempted very difficult problems. He often grasped one portion of a circle, and hauled in upon it only to find the same portion in due time again in his hands.

But far be it from us to criticise. His work is done. And in judging of a man's life-work we must ever keep in mind that we are probably not familiar with an innermost correlation of factors peculiar to the man, worked out in his own consciousness, but concealed from his friends, and born of his attrition against circumstances.

In Dr. Beard the Society has lost an active member whose presence at our meetings will always be kindly remembered.

But I fear that the limits of time which your courtesy has extended to me are now more than occupied by these desultory remarks, which, in the present instance, I trust you will accept in lieu of a more formal address. To you I now look for a year's work satisfactory to your own consciences and commensurate with that which this Society has a right to ask from you.

ON THE NEUROTIC ORIGIN OF PROGRESSIVE ARTHRITIS DEFORMANS.

By LEONARD WEBER, M.D.

ARTHRITIS deformans is a chronic form of inflammatory joint-disease, progressive in character, gradually involving all the articular tissues. It does not lead to supuration, but to atrophy and more or less deformity. A chronic panarthrititis, in which the morbid affection of the articular cartilage must be considered the most important, although that of the synovial membrane may have preceded it. R. Volkmann is very probably correct, when he recognizes the rapid proliferation of the elements of the articular cartilage, particularly on its free surface, as the essential factor of the disease. The hyperplasia of the cartilage advances, leading to considerable thickening of its free border, which is gradually turned upward upon the diaphysis. At the same time, we see a continual ossification of proliferated cartilage-tissue going on in the direction of its bony substratum, while upon the thickened borders many knobby protuberances will develop. By pressure as well as by inflammation the opposite surfaces of the epiphyses finally lose their protecting cartilage and grate upon each other. The articular surfaces thus become smooth by friction, and cavities like that of the hip- and shoulder-joints too wide to hold the head of femur or humerus in proper position; or the head of the bone may become fixated by osseous protuberances around the deformed acetabulum. The outer ligaments and

intra-articular disks of cartilage are generally affected by the degeneration; the synovial fluid, diminished in quantity, becomes of a yellowish-red color. Foreign bodies, representing detached particles of bone or cartilage, are frequently found in the joint. In the tissues surrounding the affected joint we notice frequent lesions of the tendons and their sheaths; the muscles more or less atrophic, and, in old cases, in a state of fatty or connective-tissue degeneration. Repeated examinations of the urine of persons afflicted with the disease have shown a reduction of the normal quantity of phosphoric acid (Drachmann). Arthritis deformans was not recognized as an affection *sui generis*, until modern pathologists succeeded in establishing the identity of the local changes in the diseases described as arthritis nodosa or sicca, malum senile articulorum, *rheumatic gout*, chronic polyarticular rheumatism, etc. From the genuine gout it is distinguished by the absence of the uric-acid deposits in the joints. Etiologically we may pass by the localized arthritis deformans seen sometimes after trauma, and distinguish between two varieties. The one, arthritis pauperum, nodosa, rheumatic gout, considered to be of rheumatic origin, as a rule, begins at the joints of fingers and toes, progressing thence centrally to the larger joints; the other, belonging to the senile age, generally appears first in the joints of the spine and hip, extending gradually to the joints of the periphery, or remaining fixed in the large joints. But we must not forget, that arthritis deformans in either form is a disease occurring in the later period of life, where there may always be combinations of senile changes and rheumatic influences, and consequently transitions of one form into the other.

Etiology.—A. deformans commencing at the smaller joints of the extremities occurs much more frequently in women than in men, and particularly among the poorer classes;

seldom appearing before the thirtieth year, its frequency increases toward the menopause. Continued rheumatic influences, damp dwellings, poor food, hemorrhages, frequent pregnancies, long-continued lactation, mental depression, and worry, are supposed to be the principal causes. There appears to be a predilection for such joints as are habitually more exerted than others. Hemicrania often precedes the outbreak of the disease. The other variety, the senile *par excellence*, beginning generally with the larger joints, is much more frequent in men than in women, and is found among the rich as well as the poor. Rheumatic and debilitating influences are less powerful agents here than in the other, and lean persons are observed to show a greater predisposition than stout ones. A neurotic origin of A. deformans, *i. e.*, of the peripherically beginning form, has been suggested by modern writers. Remak and Benedict were the first, I believe, who tried to connect diseases of the joints with irritative conditions of the spinal cord and the sympathetic. Later on Charcot and his pupils brought out the important fact, that disease of the posterior column of the cord frequently excites a morbid affection of one or more joints. True, the lesion in cases of tabes consists more often in a large effusion within the capsular ligament, but in other cases again structural changes are produced quite similar to those made by deformatant arthritis. Though we may be obliged to take into account traumatic agencies acting upon the joint of a limb already parietic, the frequent coincidence of joint-disease and lesion of nerve-centres is more than a mere coincidence, and deserves our attention. Among the comparatively large number of cases of A. deformans which I have seen in the course of the last twenty years, and of which I shall cite a few later on, I could not but recognize sorrow and grief, fright, irritation and exhaustion of nerve-centres by sexual indulgence and

the leading of a dissolute life, as potent in producing the disease as rheumatic influences, if not more so. Again, the symmetrical appearance and progress of the disease in most cases—how can we explain it better than by the supposition of causes located in the central nervous system. The neuralgic and trophoneurotic symptoms—atrophy of muscular tissue, for instance, not dependent on inactivity alone—also support this view, though it is not to be forgotten, that a spine stiff and deformed by arthritis, may also cause certain changes of innervation, producing neuralgias and trophoneurotic changes, secondary in character. Finally, the negative results which I had in the treating of poly-arthritis deformans after the usual antirheumatic method with iodides, colchicum, etc., and on the other hand the positive results obtained in similar cases by the galvanic treatment of the central nervous system, combined with a generous diet and the persistent administration of cod-liver oil and iron, led me to believe in the neurotic origin of the disease in many cases. It was through the failure with the old method, that I became convinced of the erroneousness of the conventional opinion of the rheumatic or gouty origin of this formidable malady. Up to the present, no autopsies have been made with reference to the condition of the nerve-centres in this disease, and it will be a matter of future research to find the changes in the cord, presumably in the anterior horns, which may induce certain forms of arthritis deformans.

Symptomatology.—In order to avoid repetitions when I come to relate my cases, it may be judicious to give here the main features and clinical symptoms of the disease. It begins and develops generally very slowly, without any other symptoms at first but pains in one or more joints, which come and go either spontaneously or after exertion. Not unfrequently the patient complains at this early stage

of an unusual tired feeling in the joints. The pains are neuralgic, localized, or diffused through the limb. In the peripheral form, the joints of hands and feet; in the central, the hip, knee, and spine, are the parts affected. In the course of time a good deal of stiffness and discomfort is experienced: the joints enlarge and become unshapely by the proliferation of hard, osseous protuberances on the outer surface of the swollen epiphyses, and creaking or cracking in moving or palpating the joints is perceptible to the patient and to the physician. The adjacent soft parts, particularly the muscles, show in a comparatively early stage of the disease a degree of atrophy not at all commensurate to their passive condition alone, but much more due to peculiar nutritive changes of neurotic or myotic origin. Small, hardish, movable, and somewhat painful tumors I have observed in two well-marked cases of A. deformans in the subcutaneous and muscular tissues of elbow and forearm. I believe them to be mainly connective-tissue growths. They certainly did not appear to me like "neurotic nodules," as Remak would have it, in describing such as he had seen in arthritic disease. In the peripheral form, the disease affects the joints almost always symmetrically on both sides; in the central form, the advance is irregular. In one case I have seen it remain stationary in the hip-joint for many years, but attacking some joints of the fingers and toes at last. In another case the upper part of the body only is affected, in a female patient about thirty-five years of age. I have now a case under observation where nearly all the joints of the body were badly affected when I first saw the patient, who had been a helpless cripple for many months. The disorganization of the shoulder-, knee-, and particularly hip-joint, lead often to considerable shortening. In one of my cases, still under observation, the shortening of the one lower limb amounts to nearly three inches.

In the spinal vertebræ ankylosis is more quickly developed by the disease than in other parts of the body. One of my patients could neither bend nor turn her head when I first saw her, the entire spine being stiff, but there were no symptoms of compression or even remarkable irritation of the cord. The disease is slowly but steadily progressive; while it may remain stationary for a length of time, exacerbations are sure to follow. Fever or other great constitutional disturbances I have not noticed in its course. In a female patient, æt. thirty-seven, I found the urine to have a specific gravity of 1026, containing some sugar, and phosphates in abundance. Her mother has diabetes, and is a sufferer from arthritis deformans at the same time. Of a number of cases that I have observed in the course of my practice, I will relate the following:

CASE 1.—Mrs. Mo——, æt. forty-seven, American; no syphilitic or hereditary taint, but a sister is reported to be a sufferer from chronic rheumatism. Married early in life; went on the stage, and as a somewhat prominent actress, led an active and varied life, experienced many changes of fortune, travelled a good deal, and never hesitated to expose herself to wind and weather, yet always enjoyed good health until two and a half years ago, when, after a premonitory period of worry and depression of spirits by the loss of the last piece of property she owned, she experienced pains in both wrists and elbow-joints, followed by swelling and distortion of the same. Hands and feet soon followed, and when I saw her first, on Feb. 27, 1883, she had not a joint that did not creak or crack or was not out of shape, except those of the clavicle and the lower jaw. The knees and spinal vertebræ were in the worst condition and the most painful. Standing or walking, even with support, were out of the question. Here urine contained phosphates; no albumen. Sleep and general nutrition bad; bowels irregular; no treatment had so far done any good, but the disease had made rapid and steady progress. Ordered to take of propylamini (trimethylamin) 3 i, aqu. 5 viii, elæosacch. citri 3 ii, a tablespoonful ter in die before, and two pills of ferr. sulph. and potass. carbon. after, each meal; good food, and a tablespoonful of cod-liver oil three or four times a day.

Galvanism to spine and the cervical ganglia of the sympathetic three times per week. The local and general improvement has been so satisfactory that she is now able to get up and around with the help of a cane, and to do light work. The pain and swelling and distortion of joints are much less; sleep and nutrition greatly improved.

CASE 2.—Mrs. Ka——, æt. thirty-four, German; married twice, had two still-births and two abortions; second husband had syphilis and died of phthisis. Patient presents no signs of either disease; no hereditary influences. In 1877-78 severe attack of bronchitis that troubled her the whole winter, but eventually got well without any apparent damage to the lungs. After some years of trouble, anxiety, want, and exposure, A. deformans broke out two years ago, with pain and swelling of small joints of hands and feet, soon spreading to one knee-, shoulder-, and hip-joint. The disease was preceded by severe headaches, from which she suffers yet occasionally, but less violently. Some of the joints present a gelatinous feel, and several nodules of the above description can be felt beneath the integuments of her arms. No pain on pressure over sternum, clavicle, or tibia. Neither specific nor Q. C. anti-rheumatic treatment were of any service, but the disease has been very tardy in its progress, and the disfigurements of joints are not to be compared to those of case 1. She has always been able to walk, though not without pain, and from time to time has been confined to her room. Appetite and general nutrition not good. The treatment described in case 1 was commenced with in January, 1883, and carried out pretty regularly up to the present time, except as to the application of electricity. The result thus far has been satisfactory; further progress of the disease has been stopped; pain, swelling, and disabilities of locomotion are much less.

CASE 3.—Mrs. Ki——, æt. thirty-five, American; married, multipara. Father in good health; mother suffering from diabetes and arthritis deformans. Patient well built and nourished; living in good circumstances; has been for some years very unhappy in her domestic relations, and been often deprived of rest and sleep, and otherwise maltreated. After a series of premonitory symptoms, such as hemicrania and neuralgias in the upper extremities, she showed the first symptoms of the disease in the joints of fingers, wrists, and shoulders about a year ago. Her urine contains phosphates (largely) and a little sugar. The affection has made no great

progress as yet, and the treatment has not been carried out well enough to be of great service, owing to irregular attendance on the part of the patient.

CASE 4.—Mrs. He——, æt. fifty-five; multipara; no hereditary taint; no apparent cause besides a good deal of anxiety and grief on account of the persistent ill-behavior of her only son. First symptoms in small joints of fingers and toes five years ago. So far she has not experienced any great inconvenience from her affliction, but as often as she makes up her mind to take the propylamin mixture and cod-liver oil for some time, great relief follows as to pain and swelling.

CASE 5.—Mrs. Sto——, æt. sixty-five, German; married, multipara; no hereditary taint, but a good deal of exposure to rheumatic influences in her younger days. First attack in right hip-joint fifteen years ago, which led, in the course of time, to a shortening of nearly three inches, and now to complete ankylosis. No other joints suffered until recently, when several small joints of hands and feet became affected, and she had to take to her bed. Various sorts of cures were applied to no purpose. For the last three months she takes propylamin, and the compound syrup of the hypophosphites, with the result that she is able to be about again, and that no other joints have been attacked.

CASE 6.—Mr. Ge——, æt. sixty, Austrian; clergyman; single; of good constitution and no hereditary taint. He served as a missionary in his prime, travelling extensively in South and Central America. He was, of course, exposed to the severe effects of unhealthy climates, and suffered many hardships besides. He had several attacks of rheumatism, of which he got well, but eight years ago it settled in his right hip and left knee, and when I first saw him, five years since, he was in constant agony, confined to his bed for many months, and the above joints presented all the symptoms of advanced arthritis deformans. Some of the joints of his hands and feet had also become recently affected. His urine contained albumen in considerable quantities; there was amblyopia—the ophthalmological examination showing the affection of the retina often found in Bright's disease—and atheroma.

By the use of the iodides and other remedies, he was but little relieved, but two seasons at the hot springs of Virginia removed the severe recent affections of the joints, relieved his kidney trouble, and considerably improved his eyesight. The old affec-

tions of hip and knee remained as before, but ceased to give him much trouble, so that he was able to be about and attend to his clerical duties.

In the etiology of cases 1 and 2 rheumatic influences were at all events frequent enough, if not predominant, to induce me to prescribe propylamin, an alkaline remedy first employed by Awenarius, a Russian, who had seen excellent results from it in acute and chronic articular rheumatism. Prescribed as above, it is borne well by the stomach, and can be given every two or three hours during the day, in acute rheumatism, with perfect safety. I have used it in this way in certain cases, after the salicylates and the iodides, etc., had failed or could be continued no longer; and have often noticed from it a quick subsidence of swelling, pain, and fever in acute rheumatism. In my cases of *A. deformans* I looked upon it as an adjuvant only, and ordered but three or four daily doses to be taken. The constant current I used in cases 1, 2, and 3, to the spine and sympathetic, according to Erb's method, and believe that it contributed largely to the rapid and marked improvement that followed in the course of the treatment.

ACTION OF CERTAIN DRUGS UPON INTESTINAL PERISTALSIS.

By ISAAC OTT, M.D.

IN this paper I shall endeavor to show how certain medicinal agents act on the movements of the intestines. Nothnagel discovered that when a crystal of salt is applied to the intestinal canal there is a wave of contraction which always runs toward the pylorus. My experiments were made upon rabbits immersed in a half-per-cent. salt solution contained in a zinc trough. The temperature of the bath was 37–38° C. The animal was etherized before the operation, the anæsthetic being used subcutaneously. When the abdominal contents were bared, the salt-crystal was applied to portions of the small intestine and the reaction noted; then the drug was given and the effect on the reaction observed. In another place¹ I have tried to show that drugs may be divided into intestino-inhibitory and intestino-motor; that morphine and atropin in small doses are intestino-inhibitory, and eserin, nicotin, and muscarin intestino-motor. The first drug experimented with was chloral. Dr. Lauder Brunton was unable to observe any inhibitory action of the splanchnics after the animal was narcotized with chloral. I have narcotized several rabbits and always found the splanchnics able to arrest intestinal movements. Only in enormous doses have the splanchnics become weaker. To irritate the splanchnics, Ludwig's needle electrodes were inserted into the spinal cord and the induc-

¹ *New York Medical Journal*, 1883.

tion-current of DuBois' instrument turned on.¹ The salt-reflex was always present in chloralized animals, and in some came on slowly. The wave of contraction was occasionally upward and downward. With aloin the salt-reflex was quite active, as were the splanchnics. A milligramme of atropin arrested the salt-reflex of aloin. With pilocarpin, the salt-reflex took place in both directions; a subsequent dose of atropin caused it to occur in one direction—toward the pylorus. The splanchnics were active.

Strychnia had no perceptible effect on the salt-reflex. When infusion of digitalis was used, a wave of contraction ran in both directions upon the application of the salt. A subsequent dose of atropin nearly arrested the salt-reflex of digitalis. With aconitin the salt-reflex was more extensive, but, contrary to the usual effect, atropin failed to arrest the salt-reflex when used subsequent to the dose of aconitin. Irritation of the splanchnics was without effect in rabbits poisoned with aconitin. Attached are some of the experiments upon which the preceding statements are based.

CHLORAL.

EXP. 1.—Rabbit, etherized; received two and a half grains of chloral subcutaneously; the salt-reflex was present; then seventeen and a half grains of chloral were injected subcutaneously; the salt-reflex was present at the end of an hour; the splanchnics were also at the same time active.

EXP. 2.—Rabbit, etherized; received subcutaneously forty grains of chloral; the salt-reaction took place very slowly and spread in both directions; irritation of the splanchnics an hour after the injection arrested peristalsis.

EXP. 3.—Rabbit, etherized; received subcutaneously forty grains of chloral; an hour after the injection, irritation of the splanchnics arrested the peristalsis, although their action was weaker.

EXP. 4.—Rabbit, received subcutaneously forty grains of chloral; irritation of the splanchnics arrested the peristalsis.

¹ Sanderson's Hand-book, p. 525.

ALOID.

EXP. 5.—Rabbit, etherized ; received .016 gramme aloin subcutaneously ; salt-reaction quite active ; intestinal movements active ; irritation of splanchnics arrests the peristalsis ; .001 gramme atropin was given subcutaneously ; salt-reflex afterward failed.

PILOCARPIN.

EXP. 6.—Rabbit, etherized ; received .001 gramme of muriate of pilocarpin subcutaneously. After some time the salt caused a wave of contraction in both directions ; .001 gramme of atropin subcutaneously ; upon application of salt, the wave of contraction runs in only one direction—toward the pylorus.

STRYCHNIA.

EXP. 7.—Rabbit, etherized ; received subcutaneously .001 gramme of strychnia. Upon application of salt I saw no effect beyond normal—even up to the period of death by convulsions.

DIGITALIS.

EXP. 8.—Rabbit, etherized ; received subcutaneously thirty-two cubic centimetres of the officinal infus. digitalis. When salt was applied peristalsis ensued in both directions ; .001 gramme of atropin, in an hour, nearly completely arrested the salt-reaction.

ACONITIN.

EXP. 9.—Rabbit, etherized ; received subcutaneously .0008 gr. aconitin ; the salt-reflex was more extensive.

EXP. 10.—Rabbit, etherized ; received subcutaneously .001 gramme aconitin ; the salt-reflex was more active. .001 gramme of atropin was given subcutaneously, but at the end of an hour the salt-reaction was still present.

EXP. 11.—Rabbit, etherized ; received subcutaneously .001 gramme aconitin ; the salt-reaction was increased ; .001 gramme of atropin was given subcutaneously, but it did not affect the salt-reaction.

EXP. 12.—Rabbit, etherized ; received subcutaneously .0016 gramme aconitin subcutaneously ; in three hours, irritation of the splanchnics was without effect ; the salt-reflex was more extensive than normal.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, May 1, 1883.

After some remarks by the retiring President, the Society listened to the address of the newly elected President, Dr. WM. J. MORTON. This address, relating to the history and progress of the Society, and to neurological specialism in general, is printed in another part of the JOURNAL.

Stated Meeting, June 5, 1883.

A stated meeting of the Society was held at the usual hour and place, Dr. WILLIAM J. MORTON, President, in the chair. After the election of active members, Dr. M. JOSIAH ROBERTS presented to the Society a case of myxœdema.

The patient was a woman, aged fifty; heredity good. She complained prominently of coccygeal tenderness and pain, and pain in the dorsal and cervical regions of the vertebral column. More extended examination revealed puffiness and pallor of face, mask-like expression, muffled speech, "spells" of irritability of temper and uncontrollable morbid impulses and "nervousness," forgetfulness, general formication, disappearance of hair on the head, pubes, and in the axillæ, swelling of the extremities without pitting on pressure, cutaneous anæsthesia, paresis with great sense of fatigue, "shuffling gait," amblyopia, insomnia, anorexia, "electric-like shock" in body and limbs, feelings of faintness, menstrual irregularities, diminished temperature in right axilla, and occasional limpid urine.

Dr. GEORGE R. ELLIOTT, made the following report, based upon a microscopic examination of a piece of skin removed from her leg.

"I have examined microscopically the piece of skin removed from the leg (middle $\frac{1}{3}$, outer surface) of Miss S—, and find the following conditions present:

"1. The walls of the blood-vessels are decidedly thickened.

"2. There is a general atrophy of the sweat glands, and in places these are surrounded by embryonic cells.

"3. In the corium, just beneath the rete mucosum, are branching cells (not to be distinguished from branching connective-tissue cells). There are not a sufficient number of these cells found to warrant one in saying that mucous tissue is present.

"4. The hair follicles in the sections examined are normal.

"5. Large-nerve trunks are present. In other respects the skin is apparently normal."

The patient was presented personally to the Society for examination.

After some discussion the paper of the evening entitled the "Rest Cure," with reports of illustrative cases, was read by the author, J. H. GUNNING, M.D.

Dr. Gunning presented a brief abstract of the doctrine of the "Rest Cure." This plan or course is a combined form of treatment, first carried out and described by Dr. Weir Mitchell of Philadelphia, and indicated in that line of intractable complex form of nervous affections where the subjects are entirely absorbed in themselves, their sensations and interests, having obstinately resisted all forms of treatment, and presenting symptoms of disorganized digestive, nervous, circulatory, and muscular systems; the powers of assimilation nearly gone; exceedingly nervous and irritable, with all the annoying sensations of neurasthenia aggravated further by the active mental, muscular, and sympathy-exciting distresses of hysteria.

In this treatment, the first thing necessary is to bring about an impression by isolation, removing the person from all former associations and surroundings to a private hospital or place where the physician's orders will be carried out. (Never treat patients at their home.) Sec-

ondly, putting them to bed and using a systematic, gentle though firm, discipline, mentally and physically, with a regular plan of feeding the patient with milk, meats, vegetables, soups, Reed & Carrick's beef peptonoids, maltine, cod-liver oil, iron, and phosphorus. Thirdly, preventing the ill effects of rest, and assisting digestion by the means of massage and electricity for six or eight weeks. At the end of this time many of the distressing symptoms are gone; the blood improved in quality and quantity, nervousness better, digestion good, and the mind, to a certain extent, in charge of its owner, the patient gaining an abundance of solid, healthy fat (from five to fifteen pounds during the course). But unfortunately in the cases that I have treated it was not a cure, but a foundation upon which I could build, for the improved systems more readily assimilated the remedies and used the stored fat for nerve nutrition, giving the patient a start, but requiring just as severe discipline after the fattening as before. When the patient has completed the time of treatment, he must be given a certain amount of exercise, repeating the same thing over and over again each day, and adding to each day something new, both mentally and physically, doing it perfectly, and naturally using in this his will-power; but always remembering that the exercise must not be carried to fatigue. At first he will notice that weight is decreasing, but in a few days it will return and often more than before, until the patient reaches the point when he can perform old duties with facility and pleasure.

Regarding special points in the massage, I would add over the tender spots along the spine and over the ovaries, a gentle tapping with a couple of small rubber balls attached to flexible handles, until the patient is able to bear the hands of the manipulator.

As many of the cases are females, and generally suffering from ovarian or uterine diseases, I have them placed in certain positions secured by apparatus which I have devised (and use in my hospital). While thus secured the abdomen is thoroughly massaged. In the application of electricity I prefer the statical, because it is more acceptable to the patient.

And to overcome the profuse perspiration incident to the treatment, baths of nitric, nitro-muriatic, and sulphuric acids are used.

In the discussion which ensued, the value of the "Rest Cure" in neurasthenic and hysterical cases was unanimously conceded.

Meeting of October 12, 1883.

Dr. WILLIAM J. MORTON, President, in the chair. Dr. LEONARD WEBER read a paper upon the neurotic origin of progressive arthritis deformans. The paper is printed in full in another part of the JOURNAL. Discussion on Dr. Weber's paper then ensued.

Dr. WENDT had seen a number of cases of arthritis deformans in hospital practice, all of which had, under the usual plan of treatment, gone on from bad to worse. He had also seen one of Dr. Weber's cases, in which a marvelous result had been obtained, in a comparatively short time, by an entirely different plan of treatment. He thought the value of Dr. Weber's interesting paper lay mainly in the therapeutic suggestions which it contained; for if other observers corroborated the ideas here advanced, a progressive step will have been taken. He thought it was important to try and get at the cause of the disease: its symptomatic treatment was highly irrational.

Dr. DANA remarked that the few cases seen by him had not illustrated the neurotic origin of the disease. In New York, he was of the opinion that the disease was rarely met with in private practice. He had seen only a few cases in hospital and dispensary service; this was even true in the Marine Hospital for Sailors, where rheumatism abounded. He recollected having seen one aggravated case: the patient was an old woman, some seventy years of age, who had suffered from the disease for sixteen or seventeen years. It began in the vertebral column, and gradually involved the hips, knees, and toes. She was so helpless, that in order to evacuate her bowels it was necessary to place her in the horizontal position over a pail. The patient had

Bright's disease and died of apoplexy. Upon post-mortem examination deposits of urates were found in the joints of the great toes. The patient was poor and surrounded by all the conditions favorable to the development of the disease.

Dr. Dana said he had seen some women of a neurasthenic type, women who had suffered from functional nervous disturbances, who developed a kind of inflammatory swelling of the fingers, so that in one case the hands became almost useless. He did not know but that later on in life these cases might develop into arthritis deformans; and if so, would illustrate the theory advanced in the paper. In considering neurotic inflammations of joints, Dr. Dana thought the relation of the trophic nerves to them, if there are any trophic nerves, should not be lost sight of. Never, so far as he knew, have we found any articular disease following from functional nervous trouble. The nervous difficulty must be organic. In no experiment upon animals, except where an organic lesion of the spinal cord has been produced, have we been able to produce arthropathies.

Dr. WENDT did not know that the author's paper contained any evidence that the disease was developed from an injury to the spinal cord. If there had been grave central disease of the spinal cord, improvement could not have been so rapid. He thought the neurotic condition was not the ultimate cause. If we would go back still farther into the history of these cases, he thought we would find that there was first a disturbance of nutrition, after which the neurotic condition developed.

Dr. BURRALL wished he could add something to our knowledge of this subject. The disease was one we were continually meeting. It seemed to him to be an arthritis resulting from trophic changes. In two cases which he could now call to mind, these changes resulted from worry. One case had gouty trouble. There was no uric acid found in the urine of patients suffering from arthritis deformans. As far as therapeutics were concerned, he knew of only two remedies. The two remedies he would hope to derive beneficial results from the use of, were arsenic, which is a nerve-tonic, and eupatorium perfoliatum (boneset).

The President felt like adding a word in regard to the practical part of the paper. He had not seen many cases of arthritis deformans in private practice; he could only recall five. It was probable that most cases were seen by the general practitioner. In the first four he had met with unsatisfactory results; but in the last, becoming convinced of the fruitlessness of the anti-rheumatic plan of treatment, he had administered cod-liver oil, iron, and static electrization with great benefit to the patient. He was of the opinion that the disease occurred most frequently in the so-called neurasthenic. It was interesting to note that the first advocate of the neurotic origin of the disease was an American, Dr. J. K. Mitchell, the father of Dr. S. Weir Mitchell, of Philadelphia. As early as 1834, Dr. Mitchell announced it as his theory, that acute, subacute, and chronic rheumatism were diseases of the spinal cord. The neurotic theory of the origin of the disease in certain subacute forms was a very attractive one. He was prepared to admit, as an argument in its favor, that the ordinary anti-rheumatic treatment fails to relieve the patient. In the next place, there is a well-understood relationship between the disease in question and well-recognized nervous ailments. We have only to call to mind the arthropathies of the myelites of traumatic neuritis of certain hemiplegias, to find a defensible relationship to the changes in the joints characteristic of arthritis deformans.

Dr. DANA remarked that as interesting as it might be to claim the theory of the neurotic origin of arthritis deformans for America, it was difficult to see how the information afforded by the President's remarks made it clear that such really was the case. The author of the paper had laid special stress upon the idea that arthritis deformans was an essentially different disease from acute or chronic rheumatism. Hence Dr. Mitchell could not be credited with the origin of this theory, as his claims concerned only acute and chronic rheumatism.

The President did not think that Dr. Mitchell's claims were thus narrowly restricted. It was doubtless true, however, that these claims should not have covered all forms of rheumatism as known at his day.

Dr. BURRALL incidentally called the attention of the members of the Society to the fact that there was at the present time a case of Charcot's disease in the wards of the Presbyterian Hospital of this city. Dr. Charcot claims that Dr. Mitchell was the first to associate joint disease with the central nervous system.

Dr. WEBER, in closing the discussion, said that he was glad to have learned, from the remarks which had been made, that it was well to have brought the subject before the Society, and that he had come forward none too soon with his views upon the subject.

Reviews and Bibliographical Notices.

Sexual Impotence in the Male. By WM. A. HAMMOND, M.D., Surgeon-General U. S. Army (Retired List), etc., etc. Bermingham & Co., New York, 1883; 8vo, 274 pp.

Dr. Hammond's reputation as an author is already so well established, that it is enough to know of a book that he has written it, to know that it is both well written and instructive. "I shall endeavor (writes the author in his opening chapter) to correct certain erroneous theories which are very generally entertained, not only in regard to the normal exercise of the generative organs, but also relative to the abuses of which they are the subject." And when in this same chapter we read that he further proposes to consider certain forms of impotence of mental origin "which, though probably common enough, have not yet received the attention which they deserve," we are prepared to believe, knowing his special qualifications of experience and direction of study, that he has advanced most excellent reasons for writing this book. And if it be true, as Dr. Hammond states, that no cause, according to his experience, is so destructive to the happiness of the average man as the loss of his virile power, and that no disease is capable of causing greater loss of peace of mind, we may well believe that the author has entered upon a veritable mission of mercy in pointing out the way for relief to a large class of sufferers. And in throwing light upon the subject, Dr. Hammond cannot be charged with any attempt to conceal generative mysteries by ambiguous phrases—he draws aside the veil from weak, wicked, and diseased humanity, and places the multifarious forms of sexual inabilities and perversions before our eyes in their most uncovered physical and psychical details. Herein lies force and attraction in his work; truth laid bare, commands our scientific if not our æsthetic interest.

Sexual impotence, Dr. Hammond defines to be an impossibility or difficulty in the act of copulation implying some malformation disease, or derangement of the genital organs, either primary or secondary, by reason of which there is either absence of sexual desire, absence of the power of erection, absence of the power of ejaculating the seminal fluid into the vagina, and absence of the ability to experience pleasure during the act of copulation. These four headings constitute the text for a corresponding number of chapters into which he divides the discussion of the subject.

In chapter one we note that original absence of sexual desire is rare, while acquired absence of desire is comparatively common, whether extinguished by mental preoccupation, by masturbation, or by those remarkable perversions of the sexual appetite recently studied by Westphal, Charcot and Magnan, Tamassia, and others. But by far the most common form of impotence is that treated of in chapter second, viz.: flaccidity of the organ. Dr. Hammond's enumeration of the causes which lead to this condition will indicate in a manner only too brief the wide range over which his treatment of the subject extends. Among the more prominent causes are early sexual excesses, sexual excesses in adult life, partial impotence, nocturnal emissions, obesity, emaciation, brain affections, affections of the spinal cord, diseases and injuries of the nerves, the effects of excessive horseback riding, the effect of certain medicines, as iodine, nitrate of potash, alcoholic liquors, bromides, etc.; castration, mental causes, excess of desire, superstition, and, finally, hypochondriacal condition.

Each and all of these causes is discussed fully and with abundance of illustration by citation of cases from others, and from cases observed by the author. The concluding twenty or more pages of this chapter are upon treatment.

First and foremost among remedial measures the author enjoins *rest*, not partial, but an absolute cessation from all sexual excitement during at least a year. Conjoined to physical rest, rest of mind from all lascivious thought is of almost equal importance; travel, study, and other forms of occupation, aid in securing the needed repose. Baths, douches, exercise, attention to diet and sleeping posture and the kind of bed, receive attention. Marriage for the broken-down *roué* is advised against. Under the heading of external medical measures of treatment, electricity in its different forms receives full and favorable mention. Massage, percussion, urtication, flagellation, sinapisms, and the exhausting

apparatus of Mondat, are dismissed with deservedly scant notice. Among internal remedies phosphorus and strychnia find especial favor with our author, and he describes in some detail the formulæ and the methods of administration.

Cauterization, after the manner recommended by Lallemand, and followed by very many of the surgeons of the present time, the author regards as a "most pernicious practice." "There is nothing that can be done by cauterization that cannot be better and more safely effected by electricity in any of the ways mentioned." "I have cauterized," he continues, "many patients in my time, before I knew better, and I have caused a great deal of suffering thereby, and conferred a very small modicum of good, and I therefore cauterize no longer." We agree fully with the author in this remark, but would add to it an observation which has been brought to our own attention in some of these cases, that the cautery applied to the skin over the lower portion of the spinal cord often affords the best results.

The remaining two chapters of this work are mainly interesting in that they round out to full proportions the complete plan of treatment of the subject which the author had set out to accomplish.

Not the least merit of the work is the fact that Dr. Hammond rides no medical hobby, but squarely lays before the profession the results of much reading and a large experience. We find the book entertaining, practical, and a safe guide to the student in search of aid in treating these often difficult cases. W. J. M.

A Practical Treatise on Impotence, Sterility, and Allied Disorders of the Male Sexual Organs. By SAMUEL W. GROSS, A.M., M.D., Professor of the Principles of Surgery and Clinical Surgery in the Jefferson Medical College of Philadelphia, etc., etc. Second edition, thoroughly revised. Philadelphia: Henry C. Lea's Son & Co., 1883.

Almost simultaneously with the appearance of Dr. Hammond's book on Impotence, just noticed, a second edition of Dr. Gross' already classical work upon the same subject was issued by the Philadelphia publishers. It is seldom that two works upon the same subject present greater dissimilarities. So far as their resemblance in general "make-up" and manner of viewing the question of impotence are concerned the two books must have been written at the opposite poles. While Dr. Hammond views the question from a physiological and psychical stand-point, Dr. Gross

views it from a surgical and anatomical. "I long ago," says Dr. Gross, "reached the conclusion that impotence was generally induced by subacute or chronic inflammation and morbid sensibility of the prostatic urethra, which were frequently associated with stricture, and which were usually due to masturbation, gonorrhœa, sexual excesses, and constant excitement of the genital organs without gratification of the passions. In subsequent papers I called attention to the fact, previously noticed by other writers, that inflammation of the prostatic urethra bears the same relation to the spinal reflexes of the male that inflammation of the uterus bears to allied disorders in the female, and that it is a constant source of irritation of the genital nerves which terminate in that locality. An enfeebled state of the lumbar division of the cord and exhaustion of the cells that minister to its reflex functions are thus finally brought about."

We have quoted Dr. Gross thus *in extenso* because the doctrine here put forth is, as it were, the key-note of his entire volume. And it must be admitted that in the theory thus lucidly expounded there is the usual scientific pleasure that is excited by the reduction of scattered facts to a generalization which may be accepted as a law. It is the same theory that has led Sayre to circumcise constricted and adherent prepuces for certain cases of infantile paraplegia—the same on which is based to a large extent the *raison d'être* of the gynecologist who traces to the uterus not all ills that flesh is heir to, since certain ineffaceable conditions of sex here intervene, but certainly all ills that female flesh is heir to. We will not deny that the gynecologist is sometimes right—just often enough to make him frequently wrong; nor that paretic children are sometimes cured by circumcision—just often enough to demonstrate that this is seldom the case; nor that the treatment of the prostatic urethra by cauterization does not sometimes cure impotence—here again just often enough to mislead the practitioner into a too general application of the remedy, but we merely wish to observe, by calling attention to the facts of the case as they must have occurred to every practitioner, that generalizations of this nature, attractive as they are, are often too sweeping and more than can yet be expected of an inexact science like medicine.

Too much praise cannot, however, be extended to Dr. Gross for his attempt to reduce disease to a material and discoverable basis—certainly the statement on page 23, that of 173 cases observed by him who suffered from "atonic impotence, only

twenty-two were free from stricture," goes far to sustain his doctrine.

Dr. Gross is no believer in "psychical impotence"; on the contrary he would, in cases supposed to be of this nature, examine the prostatic urethra for evidences of inflammation dependent upon previous habits of masturbation.

But we do not intend to review this work in an extended manner. It is now in its second edition, and has already received wide and favorable notice. Its dissimilarity from Dr. Hammond's work presents in an interesting light the diversity of views upon the same subject that may arise from different stand-points of observation occupied by two able observers. In a certain sense the two works are supplementary and complementary—the surgical basis of disease of the one might have been illumined by the imagination of the neurologist, while on the other hand the deductions of the neurologist might have been more closely confined to the material basis of the surgeon. Each will find readers, admirers, and followers.

W. J. M.

Insanity Considered in its Medico-Legal Relations. By T. R. BUCKHAM, A.M., M.D. Philadelphia: J. B. Lippincott & Co., 1883; 8vo, pp. 265.

While there is nothing specially new in this essay of Dr. Buckham's, it consists of a lucid and forcible protest against the present laws and practice bearing upon insanity trials, the absurdities of which, as they are ordinarily conducted, are well and thoroughly exposed.

In the first place, he discusses the several theories of the nature of insanity—the physical media, the metaphysical, the somatic, and the so-called intermediate or mixed,—and gives in his adherence to the first-named, mainly, we think, from the fact that he does not appear to possess enough knowledge on the subject to discuss it in all its bearings. When Dr. Buckham declares, as he does, that the medical superintendents of the insane asylums in the United States know all there is to know of insanity, we may form a tolerably correct idea of the extent of his own acquirements; and when he lauds them for what they have done to advance alienistic science, he shows that he has very little idea of what he is talking about. The reformatory measures which have taken place in lunatic asylums have been forced upon the superintendents against their will. If they had been let alone from without, there would have been very little if any

improvement, for each advance has been met, in the first place, by the most strenuous opposition. Of course, these remarks are made of the body of superintendents. There are some—although a few—who have acted from a more enlightened spirit than the mass of their associates.

Dr. Buckham labors apparently under the disadvantage of being unacquainted with the French or German, or even with the English or American, literature of the subject to be found outside of Maudsley and Wharton and Stillé. Indeed, the work is to a great extent a commentary on the able volume on psychological medicine, forming a part of their treatise on medical jurisprudence. For a writer on insanity to ignore the vast body of literature contributed by that nation of the world which stands first in psychological medicine, the French, or to confine his citations to the translation of an author, is unpardonable.

Dr. Buckham's remedy for the ills of which he very properly complains is the organization of a corps of experts who shall be specially charged with the trial of the question of insanity. In theory this notion is a good one, and has been often advanced before; but when we look at the records of courts and see how many notorious and sane criminals have been acquitted of crime on the ground of insanity sworn to by so-called experts, and how many others evidently insane have been condemned by like testimony, we may doubt the applicability of his plan. We have seen superintendents of lunatic asylums, the class from which, we presume, Dr. Buckham would take his experts, rushing to Washington, at the dictation of public clamor, to aid in hanging a man whose whole conduct was that of a lunatic, and in whom the post-mortem examination showed the existence of organic disease of the brain.

Traité Clinique et Pratique des Maladies Mentales.

Par le Dr. J. LUYs, Membre de l'Académie de Médecine, Médecin de la Salpêtrière. Paris: Adrien Delahaye et Émile Lecroisnier, 1881.

Practical and Clinical Treatise on Mental Diseases.

By Dr. J. LUYs, Member of the Academy of Medicine, Physician to the Salpêtrière. Paris: Adrien Delahaye and Émile Lecroisnier, 1881.

Manuel des Maladies Mentales.

Par le Dr. BRA, Ancien Interne des Asiles d'Aliénés de la Seine. Paris: A. Delahaye et E. Lecroisnier, 1883.

Manual of Mental Diseases.

By Dr. BRA, Former Interne

of the Insane Asylums of the Department of the Seine. Paris : A. Delahaye, and E. Lecroisnier, 1883.

The present rage for the study of psychiatry seems not to be confined to the United States, where the profession has been stimulated to its study by the trial of Guiteau. Within the last three years many systematic works on insanity have appeared in France from the pens of Voisin, Ball, and others, and among these the two works now under consideration occupy a prominent place. It is scarcely just to compare them; for while one claims to be a treatise, the other modestly proclaims itself only a manual whose object is to furnish for the use of general practitioners and students a clear description of the different psychoses freed from glittering and metaphysical generalities. The work of Dr. Luys deals with the subject from more than a clinical point of view. The fascinating anatomical speculations of this writer are presented in the first part of the work. The next is devoted to the study of cerebral physiology, as analyzed in the light of the anatomical speculations. He says that "as the complex apparatus of the nervous system is always resolvable into the ultimate anatomical elements, into a nerve-cell and nerve-fibre, so the most complex manifestations of their activity are susceptible of resolution into elementary properties of tissue which are the appanage of all cells endowed with life. These elementary properties are essentially vital, combined one with the other, always under all manifestations of dynamic activity however complicated. They are three in number,—sensibility, automatism, and, what I call, 'organic phosphorescence.' " The last is the property by which the nervous elements register the vibrations to which they have been subject. Under the pathological section he divides the psychoses into the types produced by hyperæmia, those produced by anæmia, and those in which these cerebral circulatory disturbances are subordinated to cortical disease and defect. Luys is inclined, like Dr. Hammond, to believe that hallucinations constitute a morbid entity, for he says the hallucinated individual constitutes a morbid original type, as clearly defined as the epileptic, paralytic, or hysteric, "and has, therefore, considered the hallucinated patients under a distinct nosological species. From a clinical stand-point, Luys' views tend to confusion, as hallucinations are found in all varieties given by him, and are obviously secondary to these. He regards paretic dementia as a distinct entity, and in it finds hallucinations. He has not cited a single case in which hallucinations occurred alone. He states that delusions of persecution are very frequently only a symptomatic expression of hallucinatory pro-

cesses; the truth is just the opposite, and is shown by some of Luys' cases. The classification adopted by Bra is the etiological one of Morel, and Bra does not seem to have assimilated the important modifications of this made in Germany and Italy. In some respects it is not as consistent as Luys' classification, as is shown by Bra's making varieties based on other principles than etiology. Bra has not carried it to the absurd extreme of Skae. Both Bra and Luys believe in moral insanity, and both believe in impulsive insanity. It is almost unnecessary to state that Bra, being a pupil of Morel, recognizes an hereditary insanity dependent on cortical malformation rather than disease, and Luys does likewise, as is shown in his third division. The descriptions of the various types are clearly given in both works. The work of Luys does not lean to the absurd views of late formulated by Voisin, that demonstrable pathological change is a constant factor in the acute psychoses. The treatment given in both works deserves study. The works are both printed in the poor style characteristic of French medical publishers; neither has a good index, and the illustrations of Luys resemble photographs of the surface of the moon more than they do photographs of nerve tissue.

JAS. G. KIERNAN, M.D.

Insanity : Its Causes and Prevention. By HENRY PUTNAM STEARNS, M.D., Superintendent of the Retreat for the Insane, Hartford, Connecticut; Lecturer on Insanity in the Yale College Medical Department. New York: G. P. Putnam's Sons, 1883.

The present work is obviously intended more for the public than the profession, and should not therefore be subjected to the criticism which a work of a purely scientific character requires. It is obvious that the author cannot conceive of morbid mental phenomena other than as associated with disease of the brain. The preliminary chapter does not contain any thing calling for special mention. It is written in a popular style, and neither the mode of thought nor style of composition is specially striking. The chapter on the increase of insanity places too little stress on the fundamental fact that as nations increase in population and civilization, persons displaying mental peculiarities become more and more out of accord with their surroundings and are in consequence committed to asylums, where formerly they would be punished as criminals or allowed to roam about as innocents. The author's statistics are not of much value, as they are not analyzed with sufficient care. The chapter on insanity and civiliza-

tion does not contain much calling for special attention. The use of stimulants is not confined to civilized races, and is as widespread as the race. The author in this chapter says that "disease is abnormal action either in the structure or the function of an organ," which is not very comprehensible. In speaking of exciting causes of insanity in this chapter the author should have mentioned the "messnerism" on which he laid such stress in the Guiteau case as a cause of insanity in Guiteau's cousin. The chapter on the insane diathesis contains nothing new nor newly put, and it is in a great measure a rehash, at a long distance, of Maudsley. The chapter on the influence of education is worth reading by laymen, but does not lay enough stress on the fact that the struggle for prizes is a premature struggle for wealth, with its alternations of hope and despair and their deleterious influence. The chapters on industrial and moral education chiefly consist of truisms. The chapter on heredity contradicts some of Dr. Stearns' statements made in the Guiteau case. His statements about the relations of inherited tendency to alcohol, and the statements made on page 1354 of the official report of the Guiteau trial, do not agree. The views expressed in the chapter on consanguineous marriages, that while these are not necessarily injurious to the offspring they should be avoided, are trite but correct. The chapter on alcohol is a "temperance" stump speech and nothing more; it ignores the causes of alcoholism, and the same remark is applicable to the chapter on tobacco. The chapter on sex, while containing much sentimentalism, contains a good deal of truth which has been slurred over by the gynæcologists. The statement that insanity from female sexual diseases is rare, is in accord with the views of the leading alienists in France, Germany, Italy, Austria, England, and the United States. The chapter on poverty is a stump speech, and the chapter on religion deserves republication by the Tract Society. The concluding chapters deserve perusal by the populace. The author says nothing of his theory, that "a change in the electrical currents passing through the brain causes insanity from fear"; nor does he enlarge upon the theory, that "a sudden rush of blood into the brain cannot cause insanity except by actually injuring it." These are serious omissions, for the scientific world has lost much in not being able to read the reasons for these anomalous views. As a popular work this book can be recommended to the laity, but as for its scientific character, "speech is silver, silence golden." It has been well issued.

JAS. G. KIERNAN, M.D.

In Memoriam.

HERVEY BACKUS WILBUR.

CLEMENT ADAMS WALKER.

NO words, however heart-felt, coming from those less intimate with the subjects of this notice, can ever equal in intensity the eloquent tribute of Dr. W. W. Godding, Superintendent of the Government Insane Asylum at Washington, to the memory of his friends—Doctors H. B. Wilbur and C. A. Walker. For this reason we reproduce Dr. Godding's words, opportunely at hand, in a reprint from the *Alienist and Neurologist*. Dr. Wilbur's last published article appeared in the January, 1883, issue of this JOURNAL, on whose staff of writers he was an honored collaborator, and to whose pages he was a frequent and welcome contributor. In this article, which was a review of the Fortieth Annual Report of the Managers of the Utica Insane Asylum, he plead anew for a cause very dear to his heart, that of asylum reform, and, as Dr. Godding well says, he could hardly have covered the whole ground better had he known these words were the last.

HERVEY BACKUS WILBUR.—“Died suddenly, May 1, 1883, at his home in Syracuse, N. Y., in the sixty-third year of his age, Dr. H. B. Wilbur, Superintendent of the New York Asylum for Idiots.”

We jostle one another along the crowded avenues of this passing life in our eager pushing for wealth and place, and hardly turn to see who has fallen at our side. The millionaire dies, there is a momentary ripple in Wall Street and the seething waters of that life close over again. But we, as philanthropists, may well pause a moment at the open grave of him, beside whose bier

men prominent in Church and State stood uncovered to do honor to a life which had been devoted to the training and development of that most pitiable of all God's creatures, the idiot. Dr. Wilbur was the pioneer of this work in America. In the article on Idiocy, in "Johnson's Cyclopaedia," written by him, he estimates the idiots in the United States at one for every thousand of the population. To him as a young man the parable of the ninety-and-nine in the wilderness found here a new meaning. To our young men, looking solely for fame and advancement, this devotion of his whole life to a being who, to untutored eyes, appears only as a blot and a mistake in creation, may seem but ignoble work. Yet if he is rightly styled a benefactor of his kind, who makes two blades of grass grow where only one grew before, what shall we call him who leads forth the soul that, cramped and entangled in the swaddling bands of a defective organization, had else withered undeveloped in the chrysalis?

There is a story told of the princess changed by cruel enchantment into a repulsive creature, an object of loathing to the passer-by, but those who cared for and cherished her then, were rewarded by her when, disenchanted, the transformation came. Who will question that for loving service to such as these, Dr. Wilbur found his reward when the change came that fresh spring morning?

The salient points of his life are quickly given. It is the picture with which American biography has familiarized us; of a New England boy teaching and gaining an education; entering Dartmouth at the age of fourteen to graduate from Amherst at eighteen; engaged in civil engineering under the shadow of Bunker Hill monument; studying medicine at Pittsfield and graduating at the Berkshire school in 1843. Then, passing beyond the New England hills, there is a visit to Richmond, Virginia, to Tennessee, and a sojourn of some months in Illinois, probably hoping to make a home, but his rest is not there. Back to Massachusetts in the practice of medicine, at Lowell, at Westford, at Dana,—and still the call to "arise and depart." At last in 1845 he finds a home in Barre, Massachusetts. In 1846 he takes the partner of his life-work, and in July, 1848, he enters upon that work, receiving a few weak-minded children into his own family, thus opening the first school, distinctively for idiots, in America; a school which has since, under the care of Dr. George Brown, become a model private-home for this class. Three years later he is called

to Syracuse to organize the New York School, and subsequently is appointed to the charge of the Asylum for Idiots, and thenceforward to the day of his death his professional life is devoted to this work.

How well that work was done,—how, from schools which he had helped to found in distant States, at the tidings of his death, resolutions bemoaning the common loss, came to strew his hearse; how far his methods in training these unfortunates have been transmuted into common knowledge to stand as a memorial of him; how much of that personal power which no man can bequeath, is buried with him; all this, intimate, personal friends, his associates in this work, can say far better than I, and there will be no lack of eulogy.

One of these, who knew him intimately for many years, writes me: "His nature was generous beyond that of most men." I can believe it, yet there was another side to his character, which I think will be found to have had its origin, though I have not attempted to trace it, in some Presbyterian ancestor of Cromwell's time, some sturdy old Roundhead, whose blood may have flowed at Marston Moor—blood which, coursing in the veins of his descendant two centuries later, made him a good fighter; those of us who stood in the opposing ranks felt that there was no mistake about this.

This is a phase of his character which lay wholly outside of his work among the idiots, and will be differently estimated according to the stand-point of the one making the estimate. I refer to his position on questions of social science, notably to what has been considered his antagonism in later years to the superintendents of American hospitals and their methods. It was my misfortune to know mainly this side of his character, and that almost wholly through his published writings and my occasional correspondence with him. Antagonists are apt to measure only swords. He knew how to smite unsparingly, but not always deliberately, hence his blows sometimes missed their aim; but his pamphlets and articles flew thick as arrows, and they were always aggressive and vigorous. We felt that his criticisms of our methods were certainly not generous, hardly just, but the trouble was, there was too much truth in them. It was good, wholesome truth for us to hear, at any rate, for the Association of Medical Superintendents of Institutions for the Insane had become too much of a mutual admiration society for healthy growth. More than thirty years ago he

had been introduced to the Association by one of its founders and welcomed by it, had amicably co-operated with us for many years, attending most of the meetings ; and then becoming exclusive, we unwisely and rudely, as it seems to me, drove the superintendent of idiot asylums out of our synagogue. Was it to be expected that he would be very indulgent to our methods after that ? Unregenerate human nature respects the man who strikes back, and for the blows which we bring upon ourselves we can expect small sympathy. Perhaps, after all, we were a little sensitive of comparison with the English, fearing that our methods might not be properly appreciated by an outsider, and so too easily we took offence where only fair criticism was meant. I at least am convinced by my correspondence with him, that his convictions were honestly held, and much as I may regret that he could not see some things differently, now that I can no longer join issues with him,—standing uncovered in the presence of that silence which has fallen over all our strivings,—I feel it is due to him to say that he was more sinned against than sinning. I believe he went abroad to thoroughly inform himself of the most advanced ideas in the care of the insane in other countries ; returning, he published his observations and would have instructed us ; but we were not then asking advice, and we would none of his reproof,—we were more sensitive then than now. In 1881 he wrote me : “ I am now contented to republish European opinions, thus avoiding any personal controversy,” but he was only partially successful in this. As he grew older, and the gap between him and his former associates of the hospitals widened, I think he wearied a little of the fighting, although the last published article which I recognized as from his pen, the review of the Fortieth Annual Report of the Managers of the Utica Asylum, in the *JOURNAL OF NERVOUS AND MENTAL DISEASE* for January, 1883, showed that his eye had not dimmed, nor his natural force abated. But let his last words on the subject of his controversy with the hospital superintendents speak for him ; he could hardly have covered the whole ground better had he known they were the last.

In a letter dated one week before his death, in referring to an invitation to escape the rigors of a Northern spring, and come and see me, he says : “ I thank you also for the kind expressions of the latter part of the letter, which are very welcome after the experience I have had the last few years. For years I have had the pleasure of frequent intercourse with many of the superintendents

of American insane asylums, and with the most of them I have been on the most friendly terms. At the request of Dr. Anderson, of our Board of State Charities, I spent some time in visiting British and other European asylums, and made a report to that Board. From thenceforward I found myself almost an outlaw,—found myself attacked in various ways that seemed to call for a vigorous defence. Though I have never had the slightest ill-will toward any of my old associates, I am a zealous advocate of any thing in the line of my convictions, and so the tone of my papers has perhaps been an unfortunate one." Can we judge him harshly in the light of this?

But Dr. Wilbur was seen at his best outside of controversy. And here, too, let his latest words speak for him, written to me only two days before his death, a valedictory worthy of him. It was a suggestion made in a direction in which he knew I was writing, in regard to expert testimony. It was hardly meant as a criticism, yet observe how like "the hand which came out and wrote over against the wall," it records its protest against much of the medical *expertness* which has been "weighed and found wanting" in our time:

"Expert testimony should be the colorless light of science, brought to bear upon any case where it is summoned. It should be impartial, unprejudiced. There should be no half truths uttered, and suppression of the whole truth is in the nature of false testimony."

Dispassionately saying this, he went to his rest.

CLEMENT ADAMS WALKER.—"Died at his residence in Boston, Mass., April 26, 1883, Dr. C. A. Walker, late Superintendent of the Boston Lunatic Hospital, aged sixty-three years."

How the cypress burgeons in these early months, while already a moaning as of the wind of autumn is "calling for vanished faces," through all the empty pageants of these "lonesome latter years." Hardly has the grave closed over the fresh manhood of Dr. Beard, when, unannounced, the silent messenger enters, and almost together, Dr. Walker and Dr. Wilbur have gone away.

Dr. Walker early took high rank in his profession in the treatment of insanity. A graduate of Dartmouth in 1842, for thirty years Superintendent of the Boston Lunatic Hospital, President of the Association of American Superintendents of Institutions for the Insane since the death of Dr. John E. Tyler, standing at the head of his specialty in New England, what was there left for

him to attain ? To what more could he look forward ? Nothing save age and its infirmities—ah, yes, the unfading crown. So death came, and not unwelcomed by that sad, sick heart, sitting in shadow.

There are life-long friends to write his eulogy, who will pay him a tenderer tribute than mine. I only wish to drop one little sprig of green into that open grave, where, if each loving hand had cast but one, they would have filled it, so warmly was that man cherished in the hearts of "troops of friends." Eminent in much, he was pre-eminent in this, for the heart is stronger than the intellect. It was my good fortune for some years to have charge of a hospital for the insane in the same State with Dr. Walker, and so often came in contact with those who had been his patients, and their friends who had gone to him for counsel, for aid in their extremity. Some of these were wealthy, for insanity is an affliction which knocks at all doors alike ; more often they were the humble poor, the friendless and the outcast of the streets of Boston, but they all told me the same story of that great loving heart, which patiently counselled with them, which took them into its sheltering sympathy. His very frailties—who of us has them not ?—grew out of that genial, social nature. A warm heart makes friends everywhere, and friends were his abiding strength in every time of trouble. Yet he was a proud, and could be a stern, man ; but there was something within which mellowed that pride and softened the sternness.

He was often called in court, and the poor lunatics under indictment for crime found in him a powerful advocate. He was able to discern insanity, if it existed, even when it was unpopular to see it. In those last days of June, of a year ago, although confined to his chamber by sickness, he wrote a strong letter, and in spirit went shoulder to shoulder with us, as we stood vainly pleading to avert a nation's shame.

Like many men who have been born in Boston, his heart was bound up in that old town. He planned a magnificent lunatic hospital for her (the plan, somewhat modified, but not improved, was afterward made use of by the State of Massachusetts, at Danvers). He selected a site for it which looked out over the city and the ocean. He gave the best working years of his life to the careful elaboration of his plan, and made the most earnest and unselfish efforts to secure its embodiment in brick and stone. Year after year he saw that plan deferred, lived to see the one

fond dream of his life fail, to find the whole work had been abandoned. And then he went back to that miserable, ill-constructed, half-lighted, and less than half-ventilated, old rookery, at South Boston, which, even with all the admirable changes that have lately been made, is a disgrace to that proud city to-day, and with spirits crushed, and that great heart bleeding, took up those poor creatures and went sailing with them down the harbor, into the air and sunshine, cheered them in their sorrow, and with the warmth of his heart shining through smiles, lit up the dusky corridors of that prison pile, till, transformed by his presence, those low ceilings lifted, and the poor inmates felt, while he was with them, that they were dwelling in "kings' palaces." Said I not well that the heart is stronger than the intellect? That heart which at last was broken?

This was his work. I know nothing of his theology, but I do know that he kept ever in his life, if not in his mind, the words of the Master: "When thou makest a feast, call the poor, the maimed, the lame, the blind."

And it is the garlands, which these poor ones bring now to lay above his grave, that shall be his monument. Wilding flowers, withering yet renewed, till taking root they write an inscription in the dust to outlast the marble: "These cannot recompense thee, but thou shalt be paid."

W. W. G.

Editorial Department.

SYPHILITIC LOCOMOTOR ATAXIA.

THE causative relation of syphilis to locomotor ataxia is still a vexed question. The positive dictum in the affirmative, first formulated by Vulpian and Fournier, has met with abundant statistical corroboration, but further observation has also apparently shown that, aside from a number of other weighty arguments, the statistics themselves are vitiated by certain untenable fundamental premises.

Illustrative of the difficulties of arriving at a definite conclusion from a therapeutical stand-point are observations like the following :

A man fifty-four years of age ; syphilis contracted at the age of twenty ; at forty first symptoms of ataxia, ocular troubles, and vertigo. Ten years later, lancinating pains and ataxia ; since, general anæsthesia of the lower limbs, partial anæsthesia of the upper ; anæsthesia of the muscular sense, abolition of the reflexes ; complete ataxia.

The patient was submitted to specific treatment. At the end of a week there was already improvement. At the end of three months the cure could be considered complete, though at the time of the report this result had only been attained for two months.

But granting the chances of the relapse which many would prophesy, the case is remarkable, and it is by no means unique, since similar cases are often reported. It is incredible that the

profound sclerotic lesions usually found *post mortem* in tabes, and believed to be the cause of the clinical aggregation of symptoms, could have disappeared in a few weeks.

Such cases suggest the possibility of a congestion of the posterior columns, producing all the symptoms of locomotor ataxia. On the other hand, microscopic examination of the cord has shown extensive degeneration of the posterior columns in cases where the symptoms were as yet slight, and justified merely the diagnosis of a very early stage of the disease. Clearly, much yet remains to be done to clear up the pathogeny of this affection, which of all others of the spinal cord has been supposed to be the best determined.

And opposed to the anti-syphilitic treatment of the disease, as illustrated in the above and other reported cases, is the experience, among others, of Debove, who took, without special selection, forty ataxics in a large hospital, and put them upon the anti-syphilitic treatment. Not only did he obtain no improvement in any case, but in some the disease was aggravated.

Evidently the question still remains an open one.

LATHYRISM.

FROM the *Journal de Médecine de Bordeaux* we learn that M. Proust has recently made an interesting communication to the French Academy of Medicine concerning an epidemic of a new toxic paraplegia, which he terms, following Cantani, who made the first observations upon the subject, *Lathyrism*.

The epidemic occurs among the natives of the mountains of Kabylie, and only during the months of March and April. The early symptoms present the characteristic features of acute transverse myelitis, viz: fever, pain in the back, creeping sensations and trembling, paralysis of motion and sensation, and vesical troubles. At a later stage the principal force of the attack is expended upon motility—producing contractures, twitchings, and exaggerated reflexes, resembling, to a certain extent, lesions of the lateral columns.

The attack is rarely fatal though the cases are frequent. Its causation is directly traceable to the ingestion of a leguminous plant (*lathyrus cicera*) common to the country, and resorted to at certain times by the natives as food.

The lateral columns of the cord seem to be mainly affected, and the resemblance of the symptoms to those of spastic spinal paraplegia are noted. Indeed, M. Proust proposes to term it *spastic spinal lathyrism*.

Aside from its novelty the practical value of the observation is doubtless to be found in the possibility that a drug thus specific in its effect upon the spinal cord, and yet at the same time comparatively safe to administer, may be found to have a definite place among remedies directed toward the treatment of spinal diseases. But precise indications for its therapeutic use will only be gained from a more thorough study of its toxic effects. MM. Marie and Vulpian it seems are now pursuing this line of investigation.

THOMSEN'S DISEASE.

ANOTHER new disease of the nervous system has been brought to the attention of the medical profession by Prof. Westphal, of Berlin, who recently exhibited two patients suffering from it before the Berlin Medical Society.

Dr. Thomsen, a physician of Schleswig, first described the affection in 1876, and this with peculiar facilities for observation, since he himself had been subject to it all his life.

The disease, as observed in Dr. Thomsen's case, has a remarkable history of heredity. It could be traced back through three generations of his ancestors—seven of his own brothers and sisters out of thirteen had it, and also several of his own children.

The prominent symptom presented by the patient suffering from this affection, is an habitual spasmodic rigidity of certain muscles, coming on at the moment of executing a movement. Accompanying the rigidity there is no pain, thus differing from cramp. The tongue is often similarly involved. After a few

moments the rigidity of the muscles disappears, and the patient proceeds as if nothing had happened.

It may well be believed that this sudden turning to stone, so to speak, must often place the patient in a most ludicrous plight. One patient, for instance, on attempting to rise from a chair, finds himself poised in the act and unable to proceed. Another attempts to let go of an object and cannot open his hand.

In a case related by Leyden, the patient having closed his hand could not open it. Seeligmüller has reported three cases: the first, though to all appearances an athlete, could not execute with requisite rapidity the military drill; his muscles, "hard as wood," would, at the attempt to execute a given movement, be thrown into a contraction which lasted about five seconds; again, a *danseuse*, after finishing a song, was unable for a few moments to leave the stage, but remained glued, as it were, to the floor. Of a similar nature were the experiences of a young man, whose case has been studied and reported by Ballet and Marie. Having, in a fit of anger, struck an adversary, he was suddenly seized with a general rigidity, and was obliged to helplessly receive in return a blow which, though light, caused him to fall heavily to the ground.

Besides this transient muscular rigidity on voluntary movement, there is little worthy of note. The muscles are thought by some to be hypertrophied—in all the cases, at all events, there was a fine muscular development.

Examination of muscular fibres, taken from one of Dr. Thomsen's sons, showed no deviation from the normal. Similar examination in a case reported by Petrone gave a like result.

Mechanical and electrical irritability remain normal—sensibility is unimpaired. There are no psychical troubles.

Neither the cause nor the pathology of this singular affection are understood. It is not possible to confound it with any other disease, nor is it in the least difficult to recognize it should a case come under observation.

Seeligmüller termed the affection *spasmodic hypertrophic spinal*

paralysis ; Thomsen and Erb, *tonic spasm in the voluntary muscles* ; Bernhardt, *muscular rigidity and hypertrophy, constituting a special symptomatic group* ; Ballet and Marie, in a careful *résumé* of the entire subject, suggest *muscular spasm at the beginning of voluntary movements*.

Westphal suggests that the condition consists in an abnormality of muscular tone ; certainly, so far as terminology goes, in the present state of our knowledge upon the subject, Thomsen's disease is as satisfactory a name as any other.

It is time that a case should be reported from England or America.

BERIBERI.

WHILE referring to the neurological novelties, Lathyrism and Thomsen's disease, we may as well include in our observation some new facts concerning *Beriberi*, Barbiers, or the Japanese *Kak-ke*. The characteristic symptoms of the disease are a motor and sensory paralysis of the legs, accompanied by atrophy of the muscles ; at the same time the heart is enfeebled in its action, leading even to dyspnœa and final asphyxiation in the acute and pernicious form of the disease.

Scheube, who has recently published an exhaustive monograph upon the subject, has demonstrated by post-mortem examinations that pathologically the disease is a *subacute multiple neuritis*,—in other words, contrary to the opinion that has usually been entertained, that it is a disease of the peripheral nervous system. The inflammation is of the nature of a cirrhosis, and attacks by preference the smaller and most peripheral of the nerve trunks, extending in certain cases centripetally, and thus involving secondarily parts of the spinal cord. Scheube's observation, that the inflammatory process was confined to the small branches of the nerves and was not found in the large trunks, while yet reappearing in the cord, finds an interesting corroboration in the pathological findings reported by Pitres and Vaillard in their very recent observations upon non-traumatic peripheral neuritis. The

latter authors conclude from a series of nine necropsies, that "even in cases where neurites appear to be connected with initial alterations in the nervous centres, we have not found continuous alterations in the trunks between the cord and the altered nerves. Between the central alteration and the peripheral alteration the nervous trunks were healthy, and presented all the appearances of the normal condition."

LOCAL AUTHORITIES AND ASYLUM MANAGEMENT.

THE American politician is surely not a very enlightened person, yet he looms up grandly beside the theoretically non-partisan board of trustees of American idiot and insane asylums and the English justices of the peace who have similar functions in the British Isles. A well-known and able superintendent of an idiot asylum in Illinois, Dr. Wilbur, purchased supplies in open market at Chicago in lieu of buying them at the small town in which the asylum was situated. This was an offence against local interests not to be condoned, and the superintendent was forced to resign. All over the United States, especially in Ohio, Virginia, West Virginia, and Indiana, have similar performances occurred. Able superintendents have been turned out of office because they did not display a proper zeal for local interests. It is obvious that in this element there is a serious obstacle to progress in asylum management. The asylums erected by the State are made subsidiary to local tradesmen. To such an extent is the system of pandering to local prejudices carried, that corrupt means were taken to induce the commissioners, of an asylum to be erected, to locate the same in the vicinity of a small town in order to aid its development. The remedy for this was suggested by Comptroller Olcott some years ago, namely, the abolition of the local boards of trustees, and placing their functions in the hands of the State Boards of Charities. In England the local justices of the peace, whose unintellectual nature was ridiculed by Shakespeare, and has been the theme of ridicule ever since, are the chief authorities in the county asylums, and a

body of these specimens of petty authority turned out an able superintendent, Dr. Medlicott, because he protested against the bad laying of drains in the first place, and insisted on their repair in the second.

The American boards of trustees and the English justices deserve the same fate; both should vanish from the light of day. The latter are perhaps the worse, for they are responsible to nobody, not even to the central lunacy authorities, as long as they do not misuse or starve the patients.

DELIBERATION AND CRIMES BY THE INSANE.

THE absurdity of the cant, so much prevalent even in professional circles, about deliberation being a test of sanity, is shown by a recent occurrence in Paris: "The attempted assassination of Dr. Rochard had a curious dénouement. Dr. Rochard received a letter in which the writer accused himself of the crime, and said that he had been urged to it by voices telling him to kill some one as the only way to change his ill-luck. He had wandered about all day, and at last had hidden behind a tree, and fired at Dr. Rochard as he would have fired at any one else who might have passed him. This strange letter was put into the hands of the police, and inquiries were begun, but the next day the writer delivered himself up to justice. His confession was found to be true in every respect, and a further discovery was made that he is a lunatic who had eloped from an asylum almost without resources a few days previous to his attempt upon Dr. Rochard." It is obvious that the auditory hallucinations leading to this crime were the secondary results of the patient's pondering his misfortunes. The idea of changing "ill-luck" by some unusual performance is very common among the lower classes, and ideas of this kind would be very readily transmuted into hallucinations. It is obvious also that the patient recognized the illegal nature of his act, and further, that he resisted for a relatively long period. His confession was prompted by the desire to relieve an innocent man from the burden of his crime.

ALLOCHIRIAN HEROISM.

THERE are three kinds of heroism. The first and commonest kind is the heroism of instinct and impulse, which plunges straight to its goal, heedless of consequences and criticism. The second kind, finer and rarer, is the heroism which is heroic for its own private sake and gratification, and is at once too modest and too proud to challenge the world's admiration of its achievement. The third kind, true product of this hyper-civilized and cultured age, not satisfied with simply making itself invisible, goes a step farther, and, being a lion, dons as it were the ass' skin and imitates his bray : it is so magnanimous that, rather than receive the just reward of its self-sacrifice, it makes a supreme effort to make itself appear contemptible. A conspicuous example of this last-named superlative heroism has lately come under our notice ; and we are pleased to believe that we shall be the first to put the matter in its true light, and to rescue two benefactors of their species from the misconception which at present prevails respecting them.

Obersteiner of Vienna, has recently called attention to a sensory phenomenon which he has designated Allochiria (*ἄλλος-χείρ*). When this condition is present, the patient refers the sensation of pain, or other irritation of the cutaneous surface, to the opposite side of the body from that actually affected, and generally to a corresponding spot. Thus far the phenomenon in question has been observed only in chronic diseases of the nervous system. Some time since, however, a certain Mr. Elam, nominally editor of a Southern newspaper, but hereafter to be known as field-marshal of the noble army of scientific martyrs, undertook to carry the investigation a step farther. While debating how best to accomplish this, the idea seems to have occurred to him to remove, at the same time, the stigma hitherto attaching to vivisectionists, that they never vivisected themselves. His success in both directions, has been as complete as it deserved to be ; and yet, so ingenious was his method of procedure, that not one in a hundred thousand, probably, has thus far regarded him as a hero

at all, but only as a vulgar breaker of the laws of his State. Mr. Elam's co-operator in the experiment was another Virginian editor, whose name, we regret to say, has escaped us. These two gentlemen got up a pretended quarrel, only to be settled at the muzzle of the revolver. They thus threw the public completely off the scent of their true purpose. After having allowed themselves to be pursued by the authorities for what seemed a sufficient length of time, they met and proceeded to business. Each operator took up a perpendicular position fronting the other, the distance between them being eight paces ; the instruments employed being bullets from Colt's revolvers, thirty-one calibre. To quote the account given by the press : " After several discharges of the weapons Mr. Elam put his hand to his leg, ejaculating, ' Oh ! I am hit ! ' He was eagerly questioned as to which leg had been struck, and he was able to reply that he was under the distinct impression that the bullet had penetrated both organs of locomotion. Investigation revealed the fact, however, that but one limb had been pierced by the missile " ; and the triumphant success of the experiment was thus placed beyond doubt.

Mr. Elam, like Galileo and other eminent pioneers in science, was made the object of the ignorant and malignant abuse of the writers in the daily papers : but we have thought it right to raise the veil which his modesty would fain draw over his heroic sacrifice, and to place him forever on a pedestal where he may receive the honor and reverence that are his due. In palliation of our American barbarism in matters of scientific interest, we may here call attention to the fact that an at least equally illiberal spirit prevails in Paris, which has been regarded as the special stronghold of unimpassioned learning. The venerable Brown-Séquard, while in the act of inserting his lancet into the nervous system of a living monkey, was smitten on the nose by a sun-umbrella in the hands of an excitable and high-wrought young lady. Without boasting, we may claim a momentary precedence over our French friends. There was an absence of calculated scientific motive in the sun-umbrella ; but there is no gainsaying Mr. Elam's legs.

Periscope.

a.—PHYSIOLOGY OF THE NERVOUS SYSTEM.

EFFECT OF SECTION OF AUDITORY NERVE.—Bechterew's studies upon the central gray substance of the third ventricle and the olivary bodies of the medulla oblongata made it possible for him to more correctly estimate the phenomena ensuing upon section of the semicircular canals. The greater part of the experiments upon the semicircular canals were made upon pigeons, and the ensuing phenomena were carefully investigated. His results upon the canals were in accord with those of previous observers. It is known that Brown-Séquard discovered that irritation of the trunk of the auditory nerve, or its terminations in the labyrinth, through puncture by a needle, caused phenomena similar to those seen after destruction of the semicircular canals. Although these facts stand in complete accord with anatomical observations, that one part of the auditory nerve goes to the labyrinth and the other to the cochlea, yet Schiff denies the facts of Brown-Séquard. Bechterew used dogs in these experiments because they have seldom been used for the phenomenon of Flourens. The operation by cutting the auditory nerve in the cranial cavity must not be lightly counted upon, for in the immediate neighborhood are important parts of the brain which have an influence upon movement.

Cyon believes that the only way to cut the auditory nerve without disturbing other parts of the brain, is to enter the skull between the occipital bone and the atlas, the medulla oblongata being carefully pushed to one side. Bechterew found that it is difficult to push the medulla to one side, at least in dogs, without injuring it or wounding the posterior cerebellar crus. This operation is nearly always accompanied by a more or less flow of blood, which here is to be carefully avoided. Bechterew found the following method the best for dogs, without injuring the medulla oblongata or the cerebellum. On narcotized dogs the occipital muscles were divided, from the occipital protuberance to the mastoid process, down to the bone. An opening is made a little higher than the occipito-atloid articulation at the side, the bone here being unusually thin. After the cerebro-spinal fluid

has escaped, a stylet, bent at an angle, is introduced and gradually pushed forward to the nerve, which is divided by pressure of the instrument against the nerve. If this operation is carefully done there is not the least injury to the neighboring parts of the brain. The results were as follow : immediately after dividing the nerve there is rolling upon the large axis by the animal toward the injured side. Conjoined with this is a marked deviation of the eyes on the injured side downward and outward, on the opposite side upward and inward. In both eyes there was marked nystagmus with dilatation of the pupil on the uninjured side. The rolling of the animal is greatest in the first few days, continuing during several hours, only at times resting for a short period and lying upon the side corresponding to the injury. The head of the animal also assumes a peculiar position, the side of face on the injured side being directed downward and the other upward. The nystagmus and deviation of the eyes continue during the resting stage, although weaker than during the beginning of the movements of rotation. The extremities have a peculiar position : on the side of lesion, are drawn toward the abdomen, half flexed, and can be bent or extended in a passive manner. The extremities of the opposite side are extended outward and with such force that they are not easily flexed. This position of the extremities is not peculiar to section of the auditory nerve being found after injury of the gray substance of the third ventricle or the olivary bodies of the medulla oblongata. After a few days the rolling movements gradually decrease and occur only in the form of paroxysms, which are caused by external irritants. When the animal recovers the rolling disappears in the first week. The animal regains the power to stand on the feet, although the ocular deviation, the position of the head, and an especial disposition in great part to fall upon the side are noticed for a considerable time. In time the movements decrease, although a complete restoration of motility does not take place after several weeks. During the period of recovery an unexpected noise usually causes the animal to fall upon the side of the divided nerve, and one or two acts of rotation on the long axis take place. After section of both auditory nerves there is a general disturbance of equilibrium, an inability to go or to stand without the least weakness of the extremities being present. The animal operated on as just described lies upon the floor as he is placed. If he is painfully irritated all his movements are uncoördinated, highly irregular, and no locomotion of the body will be brought about. With these trials of movement a see-saw motion of the head ensues. When only one auditory nerve is cut and after a few days the second is divided, it was found that after the division of the second the same general disturbance of equilibrium ensued, with the deviation of the head and body. The movements about the long axis of the body are done with considerable force, so that it is nearly impossible to prevent them. After an operation on the auditory nerve, he chloroformed the dogs and found that the disposition to

roll decreased and disappeared as well as the nystagmus. The deviation of the eyes, the position of the body on the side, and the extended position of the limbs remained. Bechterew believes that all the above phenomena after section of the auditory nerve are of a reflex nature, for they take place when the cerebral hemispheres are destroyed or the animal is well narcotized. There is no doubt that the presence of uninjured cerebral hemispheres upon the phenomena after section of the auditory nerve exercises a certain influence, since the involuntary movements are excited and strengthened. The same statement is true for unilateral destruction of the olivary bodies, the central gray substance of the third ventricle, and the cerebellar crus. Only in this way can be explained that the characteristic movements of the animal operated on markedly decrease after destruction of the cerebral hemispheres, and respond only under the influences of irritations from without, whilst with uninjured hemispheres the animal himself causes the phenomena. By higher animals, as dogs, simple destruction or removal of the frontal or parietal lobe is sufficient without destruction of both hemispheres. After section of both auditory nerves there is mainly marked disturbance of the equilibrium of the body, an inability to move or stand, although there is no paralysis of the extremities.

After section of the auditory nerve or destruction of the semicircular canals, the ensuing phenomena stand in immediate dependence to the functional falling out of the canals operated on, from removal of the normal ampullar sensations which are conveyed through the cerebellum in a reflex way to the muscles, through the motor tracts, and to the normal unbroken excitation of uninjured canals which bring out certain sensations and in a reflex way convey them to the motor tracts.

The want of harmony in the sensations from the destroyed canal and the uninjured one, reaches the centres of consciousness, and causes in them a strong reaction in the form of a sense of vertigo, which on one side in a strengthened manner acts on the motor disturbances, and probably gives an important impulse to excite the involuntary motor paroxysms. This view can be extended as the origin of the motor disturbances, which ensue after injury of the three well-known organs of equilibrium in relation with the peripheral organs—the semicircular canal, the central gray substance of the third ventricle, the olivary bodies of the medulla oblongata, and after injury of the cerebellum and the peduncles.

The hypothesis of Goltz, in regard to the variations of pressure of the endolymph, explains, in a satisfactory way, the functional activity of the canal as a peripheral organ, which stands in direct relation to the equilibration of the body.

The semicircular canals are organs which not only serve the equilibrium of the head but of the whole body. They stand in near functional relation to the function of the organ of hearing. The action of sound-impulse upon the movements and the state of

equilibrium of the body is performed, with all probability, by means of the semicircular canals.—*Pflüger's Archiv*, Band 30, 7 and 8 Heft.

FUNCTION OF THE CEREBELLUM.—Prof. Schiff has a communication of a provisional nature on this subject. It is known that ablation of the most superficial layer of the cerebellum, in its whole length and breadth, or the vermis alone, causes no symptoms. This holds good not only for the gray substance, but also for the white to about the level of the second bifurcation of its fibres. If a cut is made into the portion lying between the entrance of the cerebellar peduncles of the two sides and two thirds of the thickness of cerebellum is sliced off layer by layer, then irregularities of movement ensue, which rapidly increase with the depth and extent of the wound; and when the ablation approaches the middle of the cerebellum, then ensue the movements which have been designated since Flourens as want of coördination. These disturbances of movement can ensue when an extended injury is made of one or both hemispheres without implication of the vermis, or after a lesion of the latter alone, or of a hemisphere and the vermis together. In all these instances the motor disturbances are not lasting, lessening in the course of one to two days. These motor disturbances are symptoms of the spread of traumatic irritation.

Rolling movements ensue when the middle cerebellar peduncle is injured, and the direction of the turning is toward the least injured side. If the injury reaches in the interpeduncular space to the under third of the cerebellum, or the fourth ventricle is bared, then movements of incoördination ensue, but the important point is that they remain an indefinite time. By more extended loss of substance in the under third of the cerebellum, the disturbances are greater and more extensive than by smaller losses. It is not correct to infer that the intensity and length of time of an injury of the cerebellum depend mainly upon the extent of the wound, or upon the volume of the disorganized cerebellar mass.—*Pflüger's Archiv*, Band 32, Heft 7 and 8.

MOVEMENTS OF THE UTERUS.—Prof. Kronecker and Herr Frommel have made experiments upon this point, using the graphic method, which heretofore has not been employed. Previous observers watched the effects upon the bared organ, not discounting the injurious effect of evaporation and cooling of the uterus. Thus Frommel arranged his experiments as follows: in the vagina of a rabbit a perfusion-cannula, with a funnel-shaped end was so bound in that one of the cornua was connected with the funnel. In the upper end of this cornu of the uterus a simple glass cannula was fastened. The other one of the cornua of the uterus was ligated near the os uteri, since a want of synchrony between movements of the cornua complicates the curve. Through the glass

cannula a six-tenth per-cent. salt solution, of temperature 38° , was conducted, and after closure of the upper cannula, one of the cornua was under a tension of about ten cm. of water. The inlet end of the perfusion-cannula was clamped and attached to Grünmach-Marey polygraph, whose lever denoted on the kymographion the changes of the cornua. The spontaneous movements were excluded by a section above the respiratory centre, excluding the large and middle brain. The animal breathed well and regularly for many hours. When the uterus was carefully replaced in the abdominal cavity and the temperature and circulation kept as nearly normal as possible, then wave lines appeared on the kymographion, marked as those seen in movements of the diaphragm. The movements are spontaneous and rhythmic like those seen with excised heart of a frog. Their conclusions were as follow: 1. The uterus possesses in all stages of its development in mature rabbits the ability to cause rhythmic contractions. 2. When the temperature sinks (29° C. in rectum) gradually the contractions become more seldom, but their energy does not decrease; if the normal temperature of the animal is increased (38°), then the contractions become more frequent, by 39° considerably smaller, and by 40° irregular, and by 43° they are completely lost. 3. Disturbances of the circulation influence the movements of the uterus; compression of the aorta in a short time stops them. 4. The movements of the uterus are not connected with a centre lying outside of them, for they remain after complete isolation.—*DuBois Archiv*, 1883, 2 and 3 Heft.

IRRADIATION OF THE CENTRE OF DEGLUTITION.—Dr. S. Meltzer has studied this subject. Irradiation is a general property of nervous functions. Thus when the skin of the posterior extremities is pinched, with the movement of the posterior extremities are associated movements of the anterior. In three centres of the medulla oblongata, those of respiration, cardiac inhibition, and vasomotorial, there is associated excitation. In this manner Hering explains Traube's curves in the blood-pressure curve as a result of associated excitation of the vaso-motor centre by the rhythmic activity of the respiratory centre. The mechanism of deglutition is one of the most precise and the best-controlled reflex in the whole animal organism. Neither removal of the brain nor narcosis exert any influence upon the setting in action of the act of deglutition. The beginning of the act of deglutition is connected with the will only, in that we voluntarily are in position to raise the mylo-hyoid muscle, and thereby press the root of the tongue against the roof of the mouth, whereby an act of deglutition is excited. The centre of deglutition is in the medulla oblongata, but Herr M. observed in dogs that after removal of the medulla oblongata at the level of the nib of the calamus scriptorius, and after the setting up of artificial respiration, the calling-out of the movement of deglutition did

not suffer in the least. With every setting into action of the function of deglutition the heart-beats were accelerated. This increase increases with the increasing number of acts of deglutition, and is inversely proportional with greatness of the time-interval between the acts of deglutition; the shorter the time between deglutition, so much more accelerated is the heart-beat. After the acceleration ensues a stage of slowing below normal. This slowing is absolute, and in the matter of percentage lower than the acceleration, and by separate acts of deglutition difficult to perceive. By a normal pulse of seventy-two in a minute, and an interval between acts of deglutition of one second, the acceleration amounts to thirty-three to thirty-five per cent., the slowing eighteen to twenty-three per cent., of the normal pulse. The acceleration as well as the slowing depend in no manner upon the quantity and the quality of the swallowed material, but are solely associated phenomena of the calling into action of the act of deglutition. During deglutition the blood-pressure sinks. Whilst the excitation of the centre is going on the necessity of breathing is lowered.

If a series of acts of deglutition are begun simultaneously with the act of suspension of breathing, the suspension would be broken sooner if there was no deglutition. Deglutition exercises an inhibitory influence upon the labor-pains, and also upon erection of the penis. Thus by fourteen to eighteen acts of deglutition at intervals of a second, the erection is completely overcome. We possess in the spread of excitation of the centre of deglutition to neighboring centres a safe isolated example of the general law of irradiation as a general peculiarity of the nervous system. Irradiation is a common property of motor excitations and also of inhibitory excitation. The excitations of reflex inhibition undergo summation after the same laws as the excitations of reflex movement.

He also found that deglutition stopped the singultus which is seen in normal conditions. He did not try its effect in the singultus of disease.—*Archiv für Physiologie*, Von DuBois-Reymond, 1883, zweites und drittes Heft.

THE TRANSFUSION OF DILUTED BLOOD.—Professors Kronecker and Martius have made experiments upon this subject. By the name of "salt-frogs" (after Cohnheim) the animals were prepared as follows: Through the central end of the divided abdominal median vein a six-tenth per cent. of salt solution was conducted, till the fluid at the peripheral ends became colorless or very lightly colored. It is generally supposed that the whole quantity of blood is replaced by salt-solution, but this is not true. If after the first transfusion the out-flowing fluid is microscopically examined blood corpuscles are found, hence the frog is not robbed of all his blood. If the frog is allowed to rest twenty-

four hours after the first transfusion, and then transfused again, then the fluid coming out of the animal is colored red, and is rich in blood corpuscles. The same result is found after a third transfusion of salt solution. If after repeated transfusions the last remnants of blood are removed from the body of the frog, then no vital action is visible.

In living salt-frogs there is never a complete substitution of the blood by the salt solution, but only a degree of dilution of the blood. Generally, the nervous system is the most sensitive to the removal of nourishment by the dilution of the blood, and the cerebrum is more sensitive than the medulla oblongata, and this is more sensitive than the spinal cord. After the functions of the central nervous system completely cease, the heart continues to beat. Finally only direct nerve and muscle irritability remain. Their conclusions are as follow :

In the first stage of transfusion, usually after the first, the frog behaves like one robbed of his cerebrum. He sits breathing quietly, seldom makes spontaneous movements, and has the croak-reflex. In the second stage, after a second transfusion, the croak-reflex disappears. The characteristic of this stage is the irregular respiration (Cheyne-Stokes), first seen by Luchsinger. In the third stage, after further transfusion, the respiration is either arrested or there are only separate and irregular respiratory movements, often started up by reflected peripheral irritations. The most marked here is the heightened reflex excitability. The frog is as if a section had been made between the medulla and the spinal cord. In some cases the elevation of reflex irritability is so great that they appear as though weakly under the influence of strychnia. After weak irritations there often ensues strong spasmodic extension of the posterior extremities. This stage of heightened excitability disappears very quickly, and often is suddenly followed by a complete loss of reflex irritability. The heart, however, continues to pulsate. When it ceases the last remnant of vital action is lost. When the transfusion is not extreme there ensues a partial recovery in a day or so. The sitting, croaking, without-a-will frog has his intelligence partially restored. He does not croak, and instead of the Cheyne-Stokes respiration, the breathing resumes its normal type. On the other hand, animals with a heightened reflex so great as to have spasms do not recover, but quickly die. The frog conducts himself after repeated transfusions with salt solution as one whose heart had been removed. This leads to the hope that the transfusion of fluids of serum-albumen (corresponding to those used with the frog's heart) in the salt-frogs would serve the purposes of nutrition in such a manner that it would be possible to draw some conclusions about the causes of activity of the vital centres. In Cohnheim's experiments the substitution of blood or serum of warm-blooded animals for blood of the frog was very badly borne. The blood or serum which was suitable for the frog's heart, when thrown into the vascular system, caused no symptoms of recovery ; but generally

they died sooner than those without any substitute for their blood.
—*DuBois' Archiv*, 1883, 2 and 3 Hft.

VASO-MOTOR NERVES.—Professors Bowditch and J. W. Warren have made a series of experiments upon this subject. The view that the temperature of the skin is only dependent on the degree of the vaso-dilatation forms the groundwork of the most recent observations upon the vaso-motor nerves of the extremities. Although this view is very probable, the opinions of different authors are so antagonistic that a new test of the activity of the nerves concerned, by another method, seemed desirable. They made plethysmographic experiments upon the influence of irritation of nerves upon the amount of blood in a limb. Their results are as follow :

1. Irritation of the peripheral end of the freshly-divided sciatic in a curarized cat, by means of tetanizing induction-currents, can cause, in six to fifteen seconds, increase and decrease of volume.

2. Induction-currents quickly succeeding each other, 16 to 64 per second, as a rule, caused a contraction of the blood-vessels (decrease of volume in the limb), whilst slow irritation (4—0.2 beats in a second) was followed by a dilatation.

3. Induction-breaks of great frequency cause in the beginning a contraction, and then a dilatation of the blood-vessels. By forty-two animals, dilatation in one only preceded.

4. By a few experiments, with especially exact methods, to estimate time, the contraction had a latent period of 1.5", whilst the latent time for a dilatation amounted to about 3.5".

5. The vaso-dilatation lasts a few minutes after the irritation ceases, whilst the vaso-contraction usually stops with the irritation.
—*Centralblatt f. d. med. Wissenschaften*, 1883, No. 29.

THE RELATION BETWEEN THE ACTIVE PHASES OF CONTRACTION AND THE LATENT PERIOD OF SKELETAL MUSCLE.—Drs. Yeo and Cash have made a large number of experiments upon this subject, using the gastrocnemius of the frog. Their results are as follow :

1. Increase in the strength of the stimulus is accompanied by : (a) a steady and gradual shortening of the latent period ; (b) a sudden prolongation of the actual contraction when a certain degree of stimulation is reached ; (c) an elevation of the altitude of the curve with the early and the final parts, of the increase ; and (d) a removal of the summit to a later part of the curve as soon as the elongation of the curve is established.

2. Increase in the weight used as a burden for the muscle is accompanied by : (a) elongation of the latent period ; (b) commonly a slight shortening of the duration of the contraction ; (c) depression of the height of the curve ; (d) no marked change in the position of the summit except in extreme cases.

3. The application of heat causes : (a) very marked and con-

tinuous shortening of the latent period ; (*b*) a gradual and distinct increase in the height of the curve ; and (*c*) a more rapid arrival at the summit, followed by a sudden fall of the lever, which usually passes considerably below the abscissa. Extreme warmth has, however, an opposite effect when above 90° F. : the altitude gets lower and the muscles remain contracted.

4. Cooling causes : (*a*) the latent period to rapidly increase ; (*b*) a great increase in the duration of the contraction ; (*c*) at first a slight elevation in the altitude (extreme cold, however, lowers it) ; (*d*) the initial part of the curve is flattened, and the summit is delayed until a later period.

5. Gentle activity seems to increase the rate and power of contraction. Very weak interrupted currents have an effect like that produced by gentle heat. If extreme fatigue be induced : (*a*) the latent period becomes much longer ; (*b*) the duration of the contraction is increased ; (*c*) the height of the curve is considerably lessened ; and (*d*) its summit is moved away from the beginning of the contraction toward the end of the curve.—*Foster's Journal of Physiology*, vol. iv, Nos. 2 and 3.

THE SPINAL CORD AND CEREBRAL CENTRES.—Prof. Schiff has lately made a series of studies upon the nervous system. His results are as follow :

The posterior columns at the lower part of the spinal cord are sensitive, and irritation causes pain. The sensibility is greater at their outer edge than in the middle line. In the cervical segment it is otherwise ; there irritation causes no pain, and generally no marked sensitiveness. He concludes that the longitudinal fibres of the posterior columns (independent of the regions where the nerve-roots are), by weak irritation, can cause an increase of sensitiveness, but not to the degree of pain. The posterior columns contain no motor fibres. The anterior columns are not irritable to organic irritations. A segment of the spinal cord which is robbed of its posterior columns conducts pain and pressure-sensations, but no tactile sensations. He does not believe that the use of pressure in a mercurial manometer is a measure of pain. The irritation of a nerve sets into activity vaso-constrictor and vasodilator centres, and by the overpowering action of the former centres the mercury rises. To the bladder and colon the spinal cord gives reflex movements, but no motor-conducting paths, but only kinesodic paths of conduction. There are irritable centripetal nerves which cause no consciousness of a sensation, which run only to the medulla oblongata, and are lost here in the reflex apparatuses. These centripetal nerves cause, when irritated, elevation of blood-pressure. To seek centres, the only method is by that of paralysis, for all centres are inexcitable to artificial irritants. He has found that the extirpation of Hitzig's and Ferrier's cortex centres neither paralyzes these muscles nor weakens them. There is only a modification in the position of the member, which

coincides with those seen after section of the posterior columns. They are explained by want of tactile sensibility. If these centres are extirpated more deeply, then there is a want of all sensibility. The peculiarities seen after extirpation of the centres are due to want of tactile sensibility, for the tactile sensations of the different organs have cerebral centres, which are yet active when all peripheral-entering nerves of tactile conductivity are paralyzed. The centre of vision is active when both of the nerves are paralyzed, through substitution-action with other centres. The degeneration of the pyramido-lateral paths is due to affections of motor centres. The view of motor centres is superfluous; the movements are reflex.

His supposition is: that the posterior columns and Türcck's columns are mainly of the same system; the pyramido-lateral paths are not otherwise than the descending angle of a reflex arc, through which the position of our limbs or changes in our equilibrium are regulated. After division of Türcck's columns the movements do not take place after irritation of Hitzig's centres. The position of the tactile centre is not in the cortex. In the spinal ganglia lie the trophic centres for the ascending line of the cerebral tactile arc.—*Pflüger's Archiv*, xxviii, 1882; xxix, 1882; xxx, 1883.

THE IRRITABILITY OF THE ANTERIOR COLUMNS OF THE SPINAL CORD.—Herr Mendelssohn has made experiments upon this subject in the laboratories of Marey at Paris and Rosenthal at Erlangen. He used a myograph to register the contraction of the muscle. His method of experimenting was as follows: The cerebrum was divided in order to exclude voluntary movements, the gastrocnemius of the left side prepared, the spinal cord in its whole length laid bare, the brachial plexus on both sides divided, the spinal cord lifted out of the vertebral canal, and its anterior part placed on plates of rubber. Then the gastrocnemius was attached to the lever, and the electrodes laid on the anterior part of the spinal cord, near the place where the brachial plexus is given off. The distance of this place from the roots of the nerves for the lower extremities is so far that a possibility of the spreading of the currents to the posterior roots is lessened and excluded. To test the spreading of the currents he used the telephone, which is preferable to the nerve-muscle preparation for the detection of weak currents. From all his experiments he found that the reaction of the anterior columns is shorter than the reaction-time of the posterior columns of the spinal cord; that is, irritation of the anterior segment of the spinal cord generates a movement of the extremities quicker than when the same irritation acts on the corresponding place of the posterior part. The movement generated from the posterior columns is a reflex movement, whilst that generated in the anterior columns is a direct excitation. The difference between the times of reaction was from .01 to .025

seconds, which is the time required for transverse conduction of the spinal cord, which has been determined by Prof. Rosenthal.—*DuBois' Archiv*, 1883, Heft 2 and 3.

THE INNERVATION OF THE CARDIAC END OF THE STOMACH.—Dr. Openchowski has made a series of experiments upon this point. His results are as follow :

1. The cardiac end of the stomach is innervated through the pneumogastric nerves, and the right goes direct, whilst the left, by means of a commissural branch of Auerbach's plexus, goes to the stomach.

2. The pneumogastrics send extremely thin fibres to nests of little ganglia of a sympathetic character which are placed about the cardiac end of the stomach.

3. Upon the large branches of the vagi, in the cardiac region, are large nests of ganglia containing many cells.

The separated cardia of the frog can for an hour keep up rhythmic automatic contraction. In living rabbits the cardia is quiet when not irritated.

After death it makes a few rhythmic contractions. By separate induction-breaks to the vagi, the cardia does not contract. With intervals of $\frac{1}{2}$ " in succeeding induction-breaks there ensues weak contraction after a summation-time of $\frac{1}{2}$ –2".

Frequent irritations, from $\frac{1}{12}$ – $\frac{1}{30}$ " interval, of considerable intensity, contract the cardia; by smaller intensity there is a dilatation of the cardia. He also found a nerve whose function it was to dilate the cardia, and also constrictor nerves of the cardia. In the vagus exciting and inhibiting fibres run to the cardia.—*Centralblatt*, No. 31, 1883.

THE ACTION OF IRRITATION OF SENSORY NERVES UPON THE VASO-MOTOR APPARATUS IN MAN.—Dr. Istamanow has made a number of operations upon this subject.

Miss Marie Manassein found that tickling caused a strong reaction in the vaso-motor system. Istamanow studied the changes by means of Mosso's plethismograph, and the temperature variations by means of Meissner-Meyerstein's galvanometer. Tickling caused a diminution of volume in the extremities. After stopping the irritation the volume returned to normal. The surface-temperature also sank, and after the removal of irritation, returned to normal. By blowing on the skin similar results ensued. These results confirm those of Miss Marie Manassein.

Painful irritations caused an increase of volume and an elevation of surface-temperature. When cold was applied to the neck, there was a diminution of the volume of the extremities; the temperature also fell. The application of warm water, 70–90 C., caused an enlargement of the extremities; the temperature was also elevated. All agreeable irritants to the mucous membrane of the nose caused an increase, whilst disagreeable ones caused decrease, in volume.

Irritation of nerves of taste caused a diminution of the extremities and a cooling of the part. Irritation of the auditory nerves caused a diminution of temperature and of volume. The change from darkness to light, or the reverse, caused a diminution of volume of the extremities.—*St. Petersburger medicinische Wochenschrift*, 1883, No. 26.

THE RELATION OF THE DEPRESSOR NERVE TO THE VAGUS.—Messrs. Zybalsky and Wartanow have used dogs and cats in their experiments upon this subject. In dogs it can be separated from the vagus and inferior laryngeal nerves. If the central end of the depressor is irritated without section of the vagus, then there is slowing of the pulse, depression of arterial tension. After section of both vagi, then sometimes with weak currents there is a depression of blood-pressure, but usually an elevation of it. Irritation of its peripheral end caused slowing of the pulse. In cats the same results ensued.

They found that in cases where irritation of the depressor caused considerable diminution of the arterial tension, that irritation of the vagus caused an elevation; in other cases where the depressor caused elevation of arterial pressure, the vagus caused depression, so that there would seem to be a compensatory relation between the nerves. Hence in the vagus there are pressure-increasing and pressure-decreasing fibres.—*St. Petersburger medicinische Wochenschrift*, 1883, No. 25. ISAAC OTT, M.D.

b.—GENERAL PATHOLOGY OF THE NERVOUS SYSTEM.

ON CHEMICAL DISEASES OF THE BRAIN AND SPINAL CORD, AS CONDITIONED BY THE CHEMICAL CONSTITUTION OF THESE ORGANS.—Dr. J. L. W. Thudicum, London, publishes, in the *British Med. Jour.*, Sept. 15th, a paper under the above title, from which we quote certain passages.

"I submit," he says, "that locomotor ataxia is, in the first instance, an affection of white nerve matter, mainly in the spinal marrow. It consists essentially of a gradual destruction of colorless fibres, which is accompanied by the formation of microscopic bodies, having the shape of wheat-starch, and a chemical reaction with iodine, which is not that of starch, but of lignin; for starch becomes immediately blue with iodine, while these bodies require to be changed by prolonged contact with dilute sulphuric acid before they assume a blue color with iodine. These bodies were by their discoverer termed amyloid bodies, and the disease of which they were diagnostic was termed amyloid degeneration.

"Unfortunately the morbid anatomists have included under the term 'amyloid degeneration' a number of chronic parenchymatous lesions, particularly of the liver and spleen, which have nothing in

common with the disease of the nerve tissues truly called amyloid. These false amyloid deposits do not give a blue reaction with iodine, however treated, but only a mahogany-brown coloration, which is not diagnostic of any well-known chemical principle. * * * You will find in works on physiological chemistry, with few exceptions, the dogmatic statement that so-called amyloid matter is not a carbo-hydrate, but an albuminous matter. This is one of the most deplorable errors, which should be rectified as soon as possible. Amyloid matter is closely related to, perhaps identical with, cellulose; it is insoluble in caustic alkali, and contains no nitrogen. It has no similarity in appearance or reaction with the exuded matter in the liver and spleen which becomes mahogany-colored with iodine. True amyloid matter may, indeed, occur in many tissues, but only sporadically, so to say, and not massively. In the latter form it occurs solely in the spinal marrow and brain. Now let us cast a glance at a class of immediate principles of the brain which I have termed *cerebrosides*. The principal one is *phrenoin*; the second in order of quantity is *kerain*; together they form about five per cent. of the brain. From the table exhibiting the chemical constitution of phrenoin, you will see that it contains the elements of a sugar—*cerebrase* ($C_6H_{12}O_6$); of a fatty acid, fusing at 84° C.—*neurostearic acid* ($C_{18}H_{36}O_2$), an isomer of the ordinary stearic acid which fuses at 69.5° C.; and of an alkaloid sphingoin ($C_{17}H_{35}NO_2$). These three products are actually obtained by the chemical change, so-called chemicalysis, of phrenoin. Of phrenoin 25 per cent. belongs to the cerebrose radical, so that the brain actually contains between one and two per cent. of this carbo-hydrate.

"Amyloid matter or cellulin, commonly called cellulose, is closely related to sugar. It can be transformed into a sugar in the laboratory; but the transformation of sugar into cellulin has not yet been effected in the laboratory, although it occurs largely in plants and, perhaps, in those lower animals in the tissues of which true cellulin is met with; probably also in the crustacea and insects and arachnids which are covered by a body so closely related to cellulin that it might be called nitrogenized cellulinnamely, *chitin*. Now, it is most natural, I might say the most necessary hypothesis derived from the contemplation of the constitution of the cerebrosides, that in the course of their decomposition, which occurs along with disintegration of the white nerve fibres, the cerebrose radical is set free under circumstances which favor a withholding or a slow abstraction of water, and that thus it passes directly into its cellulin ($C_6H_{10}O_5$)—that is, *amyloid* of the nerve centre. This amyloid degeneration is a slowly progressing disease. It not rarely ascends the spinal marrow gradually, and does rarely destroy its victims in shorter periods than are measured by years.

"The peculiar constitution of the *cerebrosides* (or cerebral amyloids, or, as they may be termed, cerebrin bodies) gives the opportunity for another remarkable chemical disease of the brain

—namely, a kind of *acute glycosuria*, cerebrose diabetes. This accompanies certain injuries of the brain, and is itself always accompanied by fever. The cerebrose which is liberated by the brain and nerves may appear in the urine, but it is always small in amount. It can be isolated by precipitation with basic lead acetate, and decomposition of the precipitate. Cerebrose rotates the ray of polarized light, and reduces cupro-potassium-tartrate solution. It is thus sharply distinguished from *inosite*, which does not affect polarized light and does not reduce the alkaline copper-tartrate solution, but gives a characteristic rose-pink reaction with mercury nitrate. Inosite also occurs frequently in the urine in disease, but it is then supposed to be derived from the muscles. I have at present no evidence of inosite from the brain taking part in the inosuria, but the possibility must be borne in mind. These appearances of peculiar sugars not being the ordinary dextrose or diabetic sugar, in the urine in acute stages of disease, are well illustrated by the condition termed *lactosuria*, in which the lactose or sugar of milk found in the breast, owing to the impediments to the flow of milk,—*e. g.*, by inflammation,—passes into the blood and is excreted by the kidneys. Of course it may be supposed that the other constituents of cerebroside, which are decomposed under the influence of a morbid process—namely, neurostearic acid and sphingoin—also produce their own peculiar effects, of which those of the acid are probably mechanical—namely, deposition in a granular state, giving the microscopical appearance of fatty degeneration; while those of the alkaloid may be potential and poisonous, interfering with the action of adjacent unchanged nerve fibres, or even influencing, by way of the blood, paramount ganglia of animal or sympathetic action.

“I now try to direct your attention for a moment to the phosphorized, nitrogenized principle of the brain. My researches have established the fact that there are at least three genera, and in one genus at least three species, of these bodies which are no less remarkable by their chemical constitution than by their physical properties. By their faculty of assuming and maintaining the colloid state, they build up, so to say, the nerve fibre and massive accumulation of fibre toward nerve centres. * * *

The phosphorized substances have their unmistakable function in the physical and chemical economy of nerve matter. They are present in all nerve matter, particularly in the gray tissue; they outweigh the cerebromides in quantity, while in the white matter the cerebromides prevail in quantity. In short, they are deposited in every centre of life-action; in the nuclei of the ganglionic cells, no less than in those of all other cells, or bioplastic particles, blood-corpuscles included. Now, consider that these substances in the water-swelled colloid state combine with all chemical reagents with which they may be brought in contact, as long as these combinants are in relative excess, and that they part again with those with which they have combined by a simple process of dialysis; and you have the key to the comprehension of a vast

amount of brain-disease, and indeed of disease in general, not confined and perhaps not even referred to the brain. * * * If the blood bring a lead salt to the brain or nerve, kephalin and myelin immediately combine with it, the former more loosely, the latter more firmly; lecithin, apomyelin, and anilin, on the other hand, do not combine with the lead salt. In kephalin and myelin the acid character prevails; myelin indeed behaving as a dibasic acid; while in lecithin, apomyelin, and anilin the alkaloidal character prevails, so that these bodies combine more easily with such alkaloidal reagents as codinic chloride and platinum chloride. From these typical reactions you may with great certainty derive hypotheses as to the bearing of these bodies with a great number of substances. Poisoning by lead is principally nerve-poisoning or poisoning of nerves. * * * We clear the body of lead by evacnants of all kinds, but for more remote parts we only use potassium iodide, this being not only a highly diffusible stimulant, but also a stimulant of liquid excretion. The medicine will act better the more liberally it is diluted with water; then large doses of vehicles have been the cause of success in many cases in which the theory on the basis of which they were given could have inspired no confidence. Again, consider arsenical poisoning, or, what is somewhat analogous to it, poisoning by phosphorus. Arsenious and arsenic acids precipitate the phosphorized colloids of the nerves. So does phosphorus in its initial stages of oxydation, and causes death of paramount ganglion. What kills is direct chemical combination of the poison with the nerve ingredient. The most remarkable combining power is exhibited by nearly all specific nerve-principles with regard to alcohol. Chronic alcoholic intoxication is such a state of combination of alcohol with phosphorized principles and cerebromides. It is curable by disassociation, or more correctly, the washing of the alcohol out of the brain and nerves by great volumes of watery blood free from alcohol as introduced by the digestive organs. * * * It follows from the affinities of brain matter for spirit that if the spirit drunk and intended to be digested exceed a certain limit of concentration on entering the stomach, it will combine with brain matter and alter its nature and function; the restoration to a healthy state is best effected by a prudent diuretic treatment, which, if due regard be had to the strength of the heart, which is the second factor in diuresis next to the kidneys, so to say, washes out the brain and leaves it impressionable by tonic treatment. Tonics and narcotics too often used in these cases are in my experience not admissible before the nerve tissue has been cleared of combined alcohol. The phosphorized principles give to decomposition-products in several forms of brain-lesion, but more particularly in acute and chronic so-called softening. In these cases glycerophosphoric acid is found in the softened matter, and the fatty acids form in fact an emulsion; cholesterin is deposited in minute crystals; when the process has lasted long the liquid, with the acids, is absorbed, and a cheesy mass remains surrounded by a

cerebral cicatrix. Cholesterin, an alcohol by function, plays a much more important part in the chemistry of brain tissue than is commonly believed. * * * The large amount of cholesterin deposited in all degenerated tissue, *e. g.*, in common atheroma of arteries by the side of calcic phosphate, shows that the matters which kept it in solution, namely, the phosphorized and nitrogenized principles of nerve tissue, were decomposed and absorbed; once divorced from the bioplastic centre cholesterin remains isolated, loses the colloid state, assumes the crystalline condition, and henceforth is a dead material of no use to the economy, and perhaps dangerous, by the possibility of the increase of its particles under crystalline attraction. * * * Faulty excretion has a most disastrous influence upon the chemistry of the brain, as can be seen in all renal and all acute febrile diseases. * * * The brain is the most marvellous chemical laboratory of the animal economy; in it the albuminous, phosphorized, nitrogenized, oxygenated principles which perform functions as acids, alcohols, alkaloids, or bases, or as ethers, are brought into the most varied relations for the production of power of the most refined nature. The organic ingredients and constituents are as varied and necessary as in any other part of the body; and in some portions of the brain at least, a selective faculty causes the potash salts to prevail over the soda salts, as they do in muscle. This brings about the same contrast between the sodically alkaline blood and those parts of the brain, as exists between the blood and the muscle. The contrast is one favoring reaction."

ON THE ELECTRICAL EXCITABILITY OF THE BRAIN IN ANÆMIA.—J. Orchansky (*Arch. f. Psych.*, etc, Charkow, 1883) has studied the effects of blood-letting upon the excitability of the brain in narcotized and unnarcotized dogs by exposing and exciting the cortical motor area, for the anterior and posterior extremity, by means of the induced and constant current, and with the following results: After the abstraction of about one seventh of the total quantity of blood no effects were observed; after one fifth, increased excitability. A still greater abstraction diminished the excitability, at first slowly, then, after three fifths had been abstracted, very rapidly, falling in a few minutes to nothing. The increase as well as the diminution of the excitability does not follow the loss of blood until after an interval of ten to fifteen minutes.

In the phase of increased excitability a condition of psychical irritability was observed in unnarcotized animals, while during the period of diminished excitability the animal was quiet. The investigator thinks that these changes in excitability are not due to the mechanical or physical effects of diminished blood-pressure, but to nutritive disturbance of the brain substance.

On the theory that there exists in the cortex apparatuses for inhibition and impulsion, he believes that the increased excitability

results from exhaustion of the inhibitory centres, by which the impulsion centres become hyperæsthetic. The later involvement of the latter reduces the excitability. The same explanation may be given for the exaltation of excitability from the primary action of narcotics.—Rosenthal, *Centralblatt*, No. 17.

NERVE-STRETCHING AND PRESSURE (*Arch. f. Physiologie*, 2 u. 3 H.).—Experiments to determine the strain which the sciatic nerve of the frog will sustain have been made by Zederbaum under Prof. Kronecker's direction. They found that motor excitability was somewhat exalted by stretching the nerve at right angles under a weight of 75 to 500 grammes; was diminished when 500 to 900 grammes were applied, and from 1,000 grammes a decided reduction followed. In one case excitability remained after the application of 1,700 grammes. On the other hand, the reflex excitability was not retained under a strain of more than 400. The conclusion is drawn, that, with otherwise intact centrifugal conduction in consequence of the strain, the only motor conduction which is arrested consists of such excitations as proceed from reflex excitation of the cord, while direct motor and sensory conduction is preserved. The nerves of rabbits sustain pressure less than those of frogs. Unilateral section of the cord had no effect on the phenomena above described.—Obersteiner, *Centralblatt*, No. 17.

TROPHIC NERVES.—A very elaborate contribution to this subject, of a purely experimental kind, by Lewaschew, of St. Petersburg, working under Prof. Botkin, appears to confirm the growing belief that the nutritive changes which follow nervous lesions are referable to vascular disturbances (*Cent. f. d. med. W.*, 1883, p. 193). In one most important respect Lewaschew's conclusion is different from previous views: he holds that the dilatation of the vessels and associated phenomena consequent on nervous lesions, and frequently the precursors of "trophic" changes in the tissues, are due to irritation of the vaso-dilator nerves, and not to paralysis of the vaso-motor nerves. Lewaschew's investigations consisted in irritating the sciatic nerve in dogs by means of thread steeped in weak acids or salt, and then noting the phenomena that ensued in the limb, as well as making careful post-mortem examinations of all the parts involved. Contraction of the vessels of the limb was rarely the result of this operation on the sciatic, and when this result was obtained, no trophic changes ensued. Generally the very opposite condition of circulation was produced; the vessels dilated and pulsated, the limb swelled, the temperature rose, and all in the course of a few days. These phenomena would persist for several months, and then disappear rather quickly, but meanwhile more permanent changes were taking place. The soft parts round the nails were swollen and ulcerated, the epidermis of the sole thickened, the bones became enlarged, the

electrical condition of the muscles was altered. Ultimately the limb generally became atrophied, with diminished temperature; the skin and some of the muscles were reduced in volume; the subcutaneous tissues were sclerosed and white, and the blood-vessels presented contractions and dilatations of their lumen. Microscopical examination confirmed the observation of primary vascular dilatation and secondary sclerosis around the vessels. In some of the experiments excess of irritation caused muscular paralysis of the limb, complicating, but practically confirming, the observation. The absence of paralysis and anæsthesia in the best cases suggested the absence of vaso-motor paralysis, and the presence of vaso-dilator irritation. The variety of results obtained confirmed this view, as well as the rapidity of their development and the degree to which they advanced.—Dr. J. M. Bruce, *Brain*, part xxii.

HERPES.—Nieden has described a remarkable case of recurrent herpes in the region of the ophthalmic division of the left trigeminus after lesion of the cervical spine. A man who had sustained an injury in the neighborhood of the superior cervical ganglion, and who for the next six years had suffered from severe attacks of cephalalgia and ciliary neuralgia, became subject to eruptions of herpes in connection with the left eye. The cornea and the skin, corresponding to the supra-orbital and supra-trochlear nerves, were the seats of the herpes, whilst the nasal area was spared. During the next six years the eruption recurred four times, and, as in the first attack, it was always accompanied by paresis of the vessels of the left half of the face, periodical headache, hyperæsthesia of the skin, and palpitation of the heart. No doubt the left cervical sympathetic was paralyzed, with consequent neurosis of the first division of the trigeminus.—Dr. J. M. Bruce, *Brain*, part xxii.

CONTUSIONS OF THE BRAIN AND SPINAL CORD.—An extensive article, with numerous cases illustrative of the above subject from the pen of Dr. John A. Liddell, appears in the *American Journal of Medical Sciences* for July. The author says: (1) Whenever contusion of the brain is produced the lesion of the brain substance is usually found either directly underneath the scalp-wound, *i. e.*, directly underneath the external point of impact, or on exactly the opposite side of the encephalon. The latter often occurs, and is truly said to be caused by the *contre-coup*. (2) Bruises of the cortical portion of the brain and pia mater, when exposed to view, oftentimes do not differ much in appearance from bruises of the subcutaneous connective tissue, for both injuries alike are attended by ecchymosis. In numerous instances, however, there is much more copious extravasation of blood in cases of cerebral contusion than that which occurs in ordinary ecchymosis, and not unfrequently this extravasation proceeds so far as to cause death,

per se, by compressing the brain. Such sanguinolent extravasations are met with (*a*) beneath the so-called visceral arachnoid membrane, *i. e.*, with meshes of the pia mater, and furrows of the brain; (*b*) in the so-called cavity of the arachnoid membrane, *i. e.*, on the free surface of that membrane; (*c*) in the ventricles of the brain; (*d*) to the foregoing must be added those minute extravasations of blood (having the size of millet seeds) which are occasionally found disseminated in great numbers through the brain substance deeply as well as superficially. (3) Bruises of the brain often cause traumatic encephalitis, which eventuates either in subsidence and recovery, or in suppuration and cerebral abscess, or in permanent disturbances of the mental faculties, sometimes accompanied also by epileptiform convulsions. Again, he concludes: (1) that all severe concussions of the brain are very apt to be complicated with contused wounds (bruises) of the brain substance; and (2) that such wounds of the brain are in turn apt to eventuate in cerebral inflammation or encephalitis. In circumscribed contusions which are especially liable to follow blows on the head with instruments of small compass, such as hammers, spent balls, stones, brick-bats, etc., the brain-wounds will usually be found situated directly underneath the point of impact of the vulnerating force upon the exterior of the skull. The author refers to ten classes of cases which he considers important, though they have hitherto received but scanty mention. A laborer, for example, receives a blow on the head from a sharp corner of a stone which knocks him down. He is considerably stunned for a moment, but soon rallies, and gets up without assistance. His scalp is found to be slightly wounded, but there is no fracture. Although he has considerable pain in the injured part, and is quite giddy, he at once returns to his work; and although his headache, etc., persist, he still continues to work. The wounded scalp readily heals. He goes on in this way some two or three weeks, perhaps longer; then he suddenly becomes seized with intense cephalalgia and rigors, rapidly followed by hemiplegia and coma; or the paralysis and insensibility may supervene without rigors, and without any great increase of headache. Death soon ensues, and the autopsy reveals directly beneath the cicatrix of the scalp-wound the traces of a circumscribed ecchymosis in the pia mater and cortical substance; and deeper still a cerebral abscess. Such cases, he believes, are much less rare than is generally supposed, and may be saved by trephining and evacuating the abscess by puncture or aspiration.

Respecting contusions of the brain by *contre-coup* the author concludes: (1) that in a large majority of the instances where contusions of the brain are produced by falling on the head, it is caused by the *counter-stroke*, and presents itself on the side of the head opposite to that which receives the blow; (2) in accounting for the *energy* of the counter-stroke in such cases, it should be remembered that the brain does not completely fill the cranial cavity, for there is a considerable space surrounding it, em-

braced, for the most part, by the muscles of the pia mater, which is constantly filled with cerebro-spinal fluid ; (3) cerebral abscesses sometimes form on the side of the head opposite to that which has been struck. They generally cause some symptoms which should excite a suspicion of their presence. These symptoms are fixed pain at the seat of injury by *contre-coup*, paralysis of an arm or leg, and even complete hemiplegia on the side of the body opposite the seat of fixed pain in the head—*i. e.*, on the same side of the body as the part of the head that received the blow,—together with irregular shiverings and fever. The doctrine of cerebral localization may also furnish important aid in determining the site of such an abscess.

SECONDARY DEGENERATION OF THE PONS MEDULLA AND CORD.—C. Horner gives the following conclusions (*Arch. f. pract. Anat. und. Phys.*, Bd. lxxviii, p. 61) concerning his research on the above subject: 1st. The earliest degeneration changes are found, not in medullary sheaths of the nerve fibres, but in the axis-cylinder. 2d. The presence of degeneration in the cord may be demonstrated with certainty three weeks after the formation of the cerebral lesion. At this period an abundant proliferation of nuclei may be present. 3d. A secondary degeneration process also takes place in the *lemniscus layer* (Schleifenschicht). 4th. A moderate atrophy in the gray substance of the anterior horn, as well as a slight degeneration of the anterior roots on the affected side, may occur without apparent modification of the ganglion cells forming the anterior horn.—*Rev. des sci. méd.*, No. 43.

SOFTENING OF THE PONS; SECONDARY DEGENERATION OF THE TRANSVERSE FIBRES; DESCENDING DEGENERATION.—Dr. Ch. Féré exhibited to the Soc. Anatomique the pons and medulla of a woman aged eighty-five years, who had been affected for eight years with right hemiplegia, with contraction involving the face. In the pons was a small lenticular cavity filled with serum, located on the left side against the raphe, a little in front of the junction of the anterior with the posterior two thirds of the antero-posterior axis of the pons. The sides of the cavity possessed a slightly yellowish tint. A depressed tract of a yellowish-gray color starts from each side of the depression, to the width of which it exactly corresponded about the median line, while outward it gradually tapered, to be lost in the base of the cerebellum peduncle. Its color appeared like that found in degenerated tracts of the pyramids. Besides this degeneration of the transverse fibres of the pons, a well-marked degeneration of the left pyramid existed. The existence of an homonymous facial paralysis in this case may be explained by the fact that the lesion was situated toward the superior part of the pons, probably above the point where the decussation of the fibres of the facial tract decussate.—*Progrès méd.*, No. 27.

PERFORATING ULCER OF THE FOOT, AND ITS CONNECTION WITH DISEASE OF THE NERVOUS SYSTEM.—Dr. Southam (Manchester) divides cases of perforating ulcer of the foot into three classes: 1. *When the ulcer is entirely due to local causes—for example, suppuration of a bursa beneath a corn.* 2. *When the ulcer occurs in connection with locomotor ataxia, and apparently independent of any disease of the peripheral nerves.* It may occur as an early or premonitory symptom, or as a late or terminal symptom. The relation which perforating ulcer bears to locomotor ataxia is somewhat obscure, for in this affection the morbid changes are usually limited to the spinal cord and posterior nerve-roots, the latter structure only becoming implicated in the latter stages of the disease. Recent investigations, however, show that in certain cases atrophy and sclerosis of the nerve fibres of the sciatic nerve are present, while in others a diseased condition of the terminations of the sensory nerves has been observed. It is quite possible, therefore, research will reveal the fact that in cases of locomotor ataxia complicated by perforating ulcer, disease of the peripheral nerves is also present; otherwise, we must regard the local affection simply as an example of a tropho-neurosis dependent upon changes in the nervous centres. 3. *When the ulcer occurs in connection with diseases of the peripheral nerves, without any evidence of locomotor ataxia or other disease of the central nervous system.* In a case cited, an examination by Mr. Priestley of the nerves of both feet, after amputation, exhibited marked evidence of sclerosis. From identical cases discovered by other writers, it appears that the ulcer may be dependent in some cases on atrophy or disease of the peripheral nerves without any apparent implication of the nerve centres. Of course it is quite possible, he says, that in cases of this kind symptoms of central disease may eventually develop themselves, yet in the case reported six years have elapsed, and as yet no indications of the onset of that condition are present.—*Brit. Med. Journ.*, No. 1173.

AN AFFECTION OF THE SPINAL CORD CONSECUTIVE TO A CONTUSION OF THE SCIATIC NERVE.—Prof. Charcot gives the following case: A well-built man, forty years of age, was stricken down by the blow received from a heavy joist upon the left buttock. Notwithstanding the violence of the blow, no trace of ecchymosis was observed on the part, but after the injury the patient constantly suffered from a permanent pain along the course of the sciatic nerve; four painful spots being present,—the superior femoral, the peroneal, the external malleolar, and that on the dorsum of the foot,—besides intermittent pains, shooting, fulgurating, and accompanied by clonic spasms, with flexion of the leg on the thigh. During the earlier weeks the patient showed a certain degree of muscular weakness in the left inferior extremity. Three months after the accident, all pain hav-

ing disappeared, the weakness increased so as to render standing impossible. At the end of six months walking was possible for half an hour. At the time when the muscular weakness was most marked, a pain was felt in the lumbar region, lasting several days, also anuria. Catheterization showed that there existed no obstacle to the flow of urine, and still, from that time, the patient had to use a catheter to empty his bladder regularly; at the same period there supervened a partial incontinence of the fæcal matter, and the erections disappeared.

It is evident that there existed a spinal-cord lesion consecutive to the traumatism of the sciatic nerve.

The methodical exploration of the inferior extremities disclosed a notable atrophy of the left side, with tumefaction of the foot, coldness and cyanosis of the periphery, obliteration of sensibility. The muscles, receiving their innervation from the lumbar plexus, preserved their normal energy; on the contrary, those innervated by the great and small sciatic nerves, are decidedly affected at the buttocks, at the thigh, and also at the leg. The gluteus maximus and the gluteus minimus, although innervated by the superior gluteal nerve, were also affected. An attentive examination showed that, on the right side as well, the glutei and most of the other muscles were parietic or atrophied. A study of the electrical reactions of the nerves and muscles showed that the crural nerve was normal; no response followed faradic or galvanic excitation of the gluteus medius; the gluteus maximus on both sides being also inexcitable. The gemeli of the flexors of the thigh presented the degeneration reaction, more marked on the left than on the right side. All these facts tend to confirm the opinion that the lesion of the cord was consecutive to the traumatism of the nerve. This forms a type of lesions known as ascending lesions.—*Progrès médical*, 3-10, May, 1883.

ACUTE ASCENDING PARALYSIS.—Dr. Roussel (*Gaz. d. hôp.*, No. 76) has drawn the following conclusions, based on facts of experimental physiology, and the symptomatology, etiology, and anatomical alterations, furnished by several patients who had exhibited during life a complete clinical picture of Landry's disease. Acute ascending paralysis is not a distinct morbid entity. It is the pathological manifestation of an acute central myelitis, characterized by its invading tendency and the rapidity of its processes. If it happens that the microscopical examination of the nerve centres have, in certain cases, given only negative results, they must be imputed to the rapid evolution of the disease, and the rapid extension of the inflammatory processes to the superior regions of the spinal cord, whose integrity is indispensable to the maintenance of life. Every acute dorso-lumbar central myelitis, with medullary alteration, by assuming an invading process at the beginning, may develop a special form which might be confounded in its clinical evolution with acute ascending paraly-

sis, and differing from the latter in its anatomical characters only by presenting more obvious medullary lesions.—*Arch. de méd. naval.*

OCULAR SYMPTOMS IN GENERAL PARALYSIS OF THE INSANE.

—Mr. Bevan Lewis, by the systematic examination of a large number of cases, has reached the following conclusions : (1) A loss of reflex dilatation of the pupil to sensory stimulation occurred in the greater number of cases of general paralysis of the insane ; (2) next to this condition the most frequent accompaniment of the disease was loss of pupillary reaction to light (reflex iridoplegia) ; (3) In twenty-three per cent. of the cases the movements on accommodation were completely lost ; and (4) in a few cases cycloplegia was associated with this ; (5) ophthalmoplegia interna was found only in the advanced stages of the disease—in one case it appeared to commence as reflex iridoplegia ; (6) with the exception of one case, reflex iridoplegia was always present when the movements on accommodation were impaired or lost ; (7) spinal symptoms—such as absence of the patellar reflex—were by no means especially associated with the more grave ocular troubles. He concluded, finally, that the sequence of morbid phenomena occurring in the iris in this disease was : first of all, loss of reflex dilatation to cutaneous stimulation ; that, next, the reaction to light was lost (reflex iridoplegia) ; and that, in the final stage, ophthalmoplegia interna was developed and became in the end complete.—*Brit. Med. Jour.*, No. 1, 172.

W. R. BIRDSALL, M.D.

C.—MENTAL PATHOLOGY.

OÖPHORECTOMY IN INSANITY.—Taufier (*Allgemeine Zeitschrift für Psychiatrie*, Band xl) states that out of twelve cases of oöphorectomy he found two performed on insane women (it is obvious that the American cases are not included in this number). He believes that hystero-epilepsy is curable by oöphorectomy. Many symptoms of hysteria result from ovarian disease. The influence of diseases of the female genital organs in the production of insanity is a very open question, and it has not yet been shown that any psychoses are curable by oöphorectomy. In the discussion of this paper, Elischer states that he thought the value of oöphorectomy in hystero-epilepsy was over-estimated. This affection was not in the vast majority of cases of ovarian origin. Niedermann said that in idiopathic cerebral affections and paretic dementia oöphorectomy was contra-indicated. In reflex cases and nutrition neuroses it *might* be of value. Hysterical insanity was no indication for oöphorectomy. Lafenauer was of opinion that oöphorectomy was of no value in the psychoses, and but little in hysteria.

Tauffer believed that even where indicated in the neuroses oöphorectomy was employed too late to be of service. Had Tauffer and the other Hungarians been acquainted with the American cases their objections would have been more strongly put.

ELECTRICITY IN INSANITY.—Dr. Tigges (*Allgemeine Zeitschrift für Psychiatrie*, Band xxxix) has endeavored to affect the sympathetic system in the insane by placing one pole of the galvanic battery to some one of the cervical sympathetic ganglia, and the other pole on the continuation of the sympathetic nerves, or upon the transverse processes of the cervical vertebræ and on the arm; or one electrode was placed on the first cervical sympathetic ganglia, and the other on the occiput. Marked effects were produced on stuporous insanity, or on melancholia attonita in this way. By the use of the constant current in hallucinations no very decided results were obtained; the anode placed in the auditory canal and the cathode applied to the neck had a soothing effect, and when reversed an exciting effect was observed.

DIFFERENT UNILATERAL AUDITORY HALLUCINATIONS ON OPPOSITE SIDES.—Magnan (*Journal de médecine de Bordeaux*, Sept. 30, 1883) states that there are hallucinated individuals who hear on one side agreeable things, and on the other side unpleasant. Magnan has recently had under observation four cases of this kind, of which one was reported in detail. The case was one of primary monomania, complicated by epilepsy. On the right side disagreeable statements are made, on the left ambitious ideas are conveyed. These latter hallucinations are obviously secondary to the first. Magnan concludes; first, these unilateral hallucinations on opposite sides are independent of local lesion; second, they do not differ from other hallucinations; third, they prove the double action and functional independences of the two hemispheres; fourth, analogous phenomena are noticed in hypnotic states; fifth, their existence demonstrates the action of separate sensorial centres in the cortex.

PARALYSIS AGITANS AND INSANITY.—Parant (*Annales médico-psychologiques*, July, 1883) concludes: first, that insanity, properly so called, is encountered in the course of paralysis agitans, and may present variable types, but depression is, as a rule, predominant; second, that this insanity is probably due to an extension to the brain of the spinal-cord lesions, or to the formation of isolated lesions, due to the same causes as the principal disease. It is much more probable that the insanity is due to vaso-motor changes; like those in insanity from locomotor ataxia, due to the influence of the paralysis agitans.

MELANCHOLIA ATTONITA, STUPOROUS INSANITY.—Dr. J. W.

Wigglesworth (*Journal of Mental Science*, October, 1883) concludes, first, that from the ill-defined assemblage of cases called "melancholia," "melancholia attonita," and "acute dementia," a group has to be distinguished which constitutes a definite clinical and pathological entity. Second, that this group is characterized by the association of more or less self-absorption passing into vacuity, with a definite affection of the muscular system—muscular tremors and muscular rigidity. Third, the pathological basis of the same is best marked in the so-called motor cells, and possibly originating in them, but having a tendency to spread beyond their area.

FEMALE DISEASES AMONG THE INSANE.—Dr. Ripping (*Allgemeine Zeitschrift für Psychiatrie*, Band xxxvii.), in one hundred and three autopsies on insane females, found thirty-four cases having sexual affections, but the etiological relations of these findings to the mental affection were by no means settled. During life Ripping had never had under observation a pure case of reflex neurosis arising from sexual apparatus disease. Ripping was of opinion that mental diseases and female diseases act in a vicious circle, sometimes originating each other, but always aggravating each other when coëxistent. Danillo (*Archives de neurologie*, tome iv) made a series of examinations in the Asile St. Anne, Paris, with the following results: Of the entire number, eighty per cent. suffered from diseases of the generative organs; the majority of these were in the sexually active period. Among the latter, the most frequent affections were acute and chronic endometritis; next to these, inflammation of the vaginal portion of the uterus. In women beyond the climacteric, chronic inflammations of the uterus prevailed; senile marasmus of the uterus being left out of consideration. During the period of sexual activity, the forms of mental disease preponderating were: melancholia, paretic dementia, primary insanity (monomania of Spitzka), epileptic insanity, hysterical insanity, secondary dementia, and mania; beyond the climacteric, secondary dementia, then paretic dementia, melancholia, and primary insanity. In both classes, especially the latter, the greater number had borne children. The conclusions of Peretti (*Berliner klinische Wochenschrift*, No. 10, 1883) bear out these results of Ripping and Danillo, he has not been able to find marked results in a single case from gynæcological treatment of the psychoses. He admits that possibly where local irritation tends to tincture the delusions, gynæcological treatment might be of some benefit. These results are in corroboration of the unwilling testimony of Dr. Clevees. Claus has found that but fifteen per cent. of the female insane coming under his care had genital diseases.

HEREDITY.—Morandan de Monteyel concludes (*L'Encephale*, No. 4, 1883), first, that families in whom insane heredity is present

are distinguished by a comparatively great sterility of the majority of marriages and a greater fecundity of the fertile marriages, and by an excessive mortality in early infancy. Second, that from the union of these three circumstances in one family's descendants, the physician is justified in diagnosing vesanic heredity. Third, the influence of vesanic heredity on the fecundity of the married varies according to the generation. Fourth, extreme fecundity is produced in the earlier generations, followed and ending in sterility in the later generations. Fifth, insane heredity, by the exaggerated mortality in early infancy, as well as by its sterilizing tendencies, tends to extinguish the families where it exerts an influence. Sixth, these conclusions are confirmed by the fact that, if the unions of the earlier generations give birth to a large number of children, the unions of the later generations give birth to fewer and fewer children, who are more and more puny. Seventh, it is probable that the mortality of early infancy increases with the generation, and that the vitality of the children diminishes with the number. Eighth, maternal or paternal vesanic heredity, considered by itself, confirms the previous conclusions. Ninth, paternal vesanic heredity is more powerful than maternal vesanic heredity in its influence on fecundity and sterility, and in its influence on the mortality of early infancy. Tenth, the preponderant influence of the mother on the descendants cannot but be diminished by the influence of the father just cited, and will be demonstrable in not less than ten per cent. Eleventh, the paternal influence is exerted on the children early in life ; the maternal later on.

INSANITY AND VARIOLA.—Kiernan (*American Journal of Neurology and Psychiatry*, August, 1883) states that the question of the interrelations of insanity and variola naturally resolves itself into three factors : first, the influence of variola in the production of insanity ; second, the influence of variola on coexisting insanity ; third, the influence of coexisting insanity on variola. With regard to the first factor, Kräpelin (*Archiv. für Psych.*, B., xiii)-says : " Whatever be the part, real or ideal, regarded as being taken by the febrile state, the encephalic congestion, the specific poison, acting or not by decomposition of the albumen of the pustules, in the genesis of neurotic phenomena, it is most convenient to use clinical distinctions only in describing the psychical phenomena resulting from variola." He describes the psychical manifestations of the febrile stage (the initial and suppurative period) and of the terminal stage, the asthenic forms. The febrile type is a lypemania agitata with hallucinations ; the psychical manifestations usually last less than a week ; rarely more than a year. Of the cases examined by Kräpelin, fifty per cent lasted a week and less, sixteen and seven-tenths per cent. one month, the same number lasted a year, while sixteen and six-tenths per cent. lasted more than a year. Ninety-one and seven-tenths

per cent. recovered ; the remainder died or remained chronically insane. The asthenic psychoses develop sometimes with the fall of temperature, between the eruptive and suppurative period ; at other times during desquamation. The first are characterized by auditory and visual hallucinations and their consequences. This is claimed as a support for the Emminghaus' theory, that the psychical phenomena are due to toxæmia. Kräpelin says it would be more logical to suppose a direct action of the poison on the nerve centres. This theory is more applicable to the febrile psychical phenomena. The asthenic psychoses can, with more plausibility, be ascribed to acute exhaustion of the nerve centres succeeding to considerable thermic oscillations, and also consequent on central serous loss from peripheral pustulation. The psychical phenomena presented are those of an anxious lypemania, accompanied with hallucinations and sitophobia. They are of gradual evolution. Seventeen per cent. of the asthenic cases lasted one week, twenty-four per cent. one month, twenty-one per cent. one year, and thirty per cent. more than a year. Seventy-one per cent. recovered, twenty-one per cent. remained chronically insane, and eight per cent. died. These types usually appear after a severe attack of variola. Kipp reports a case of transitory furor (*mania transitoria*) after variola. Stephanides and Paulicki in a general way confirm Kräpelin as to the existence of the psychoses mentioned. Frankel reports a case of dementia seemingly resulting from encephalitis secondary to variola, and like cases are reported by Rostans, Skae, Hasse, Gregory, Wagner, Westphal, Lagardelle, and Berti. The two last mentioned, Luys, Neustadt, Fiedler, Otto, Zippe, Thoré, MacLagan, Riva, Guttstadt, and Merriggi report cases supporting Kräpelin's opinions. Mabelle (*Annales médico-psychologiques*, September, 1883) reports a case of paretic dementia secondary to variola. Calastri, Berti, and Lagardelle, have carefully studied the effects of variola on insanity. Sixty-one cases of this kind have come under notice. Fourteen recovered from insanity on recovering from variola, eight were improved, twenty-eight were unaffected, and eleven died. Chatelain reports thirteen cases in which insane patients were attacked by small-pox. An affective lunatic remained unaffected by a light attack of variola, which was also the case with a placid dement. A querulous affective lunatic, who had a severe attack of variola, was unusually docile during the disease. A "chronic maniac with delusions of suspicion" became worse during a light attack of variola. An affective lunatic improved during the convalescence from a severe form of variola, but relapsed on recovery. Three "placid dement" were unaffected by a light attack of small-pox. Three lypemaniacs who suffered from a severe attack of variola improved during the febrile state, and one ultimately recovered. Berthier reports the case of a lypemaniac who recovered in consequence and after a severe attack of small-pox. Chiarugi has had similar experience with a maniac. Nasse claims to have seen a case of paretic dementia

cured by small-pox. Schläger reports several cases in which variola occurring during insanity caused a cessation of psychical symptoms. Merrigi reports one epileptic lunatic and two chronic confusional lunatics who improved after having been attacked by variola. He and Lombroso cite three chronic confusion lunatics who recovered. Kiernan states that in the spring of 1875, small-pox made its appearance among the workhouse men employed about the New York City Asylum for the Insane. One patient, a case of confusional insanity, was attacked by it, and during the initial fever (the same in extent with that of a workhouse variolous patient who became delirious), became perfectly capable of carrying on a clear, coherent conversation. He was transferred to the Riverside Hospital, and during a three weeks' stay there was perfectly rational ; he died from a complication.

PSYCHOSES OF CHICAGO.—Clevenger, Special Pathologist, Cook County Asylum for the Insane, (*Chicago Medical Journal and Examiner*, November, 1883,) states that the psychoses of the patients tried and found insane in the city of Chicago, from August, 1882, to August, 1883, were as follows :

PSYCHOSIS.	Male.	Female.	Total.
Melancholia	22	146	168
Mania	122	36	158
" Recurrent	8	1	9
Dementia	18	1	19
Epileptic Insanity	14	5	19
Imbecility	6	1	7
Monomania	7	2	9
Hebephrenia	3		3
Alcoholic Insanity	7	2	9
Senile Dementia	5	7	12
Paretic Dementia	6	1	7
Katatonia	2		2
Stuporous Insanity (Acute Dementia)	1		1
Idiocy	1		1
Undiagnosed	7	7	14
Melancholia, Recurrent	2		2
Circular Insanity	1		1
Hysterical Insanity		5	5
Mental Deterioration		1	1
Delirium, Grave	1		1
Total	233	215	448

These are exclusive of the cases sent to the State asylums, perhaps one half as much again.

"PHTHISICAL INSANITY."—Under this title Dr. A. Campbell

Clark (*Journal of Mental Science*, October, 1883) relates three cases marked by exaltation and delusions of suspicion. They were all subject to spurts of excitement, coupled with mental exaltation, during which ideas or delusions of self-importance are peculiarly prominent. They were a prey to strong suspicions, which, in Dr. Clark's opinion, often arise from a necessary snubbing of their exalted notions. One works himself into a violent passion on finding his letters to the Bank of England have not been forwarded, and the muscles of his face quiver with excitement. He threatens vengeance, and looks it every bit, but in a few minutes he lapses into a state of gloom which gradually deepens, and for days his expression and manner are those of deep suspicion, sullen defiance, and violent hatred, the evidence of which may come out more forcibly after weeks or months of dismal brooding, and be awakened into a flame of actual violence by the stimulus of some very trivial incident, which *per se* would scarcely cause disturbance at all. In another case the patient, who for months proved amenable and sociable though nursing a dangerous grudge against outsiders, suddenly stopped work because a proposal for his release could not be entertained. He then and thereafter nourished a grudge against Dr. Clark for months, and only burst into actual violence long after, when in most minds the memory of the initial circumstance would have been obliterated. He made a complaint about his food the cause for an attack on Dr. Clark, but admitted a few weeks later that his only grudge was the one resulting from his non-liberation. While these cases are not clear evidence as to the influence of phthisis, they show, as has been claimed (*American Journal of Neurology and Psychiatry*, May, 1883), that lunatics can pretend sane motives for a crime in order to disguise their insane motives for the same.

GUITEAU'S MENTAL CONDITION has been discussed by Lutaud (*Annales d'hygiène publique*, 1882), who concludes that Guiteau was under the domination of delusive conceptions; that his mental composition was complicated by bad education and religious fanaticism; that Guiteau inherited a strong tendency to insanity. He did not count on being condemned for his crime. He did not fail to see that the homicide would be regarded as a crime, but hoped it would be regarded as justifiable from its good after-results. Whether he believed in his inspiration is not certain. He was a mixture of a criminal and a lunatic, and should not have been hanged, but should have been sent to an asylum for the criminal insane. Karrer (*Centralblatt für Nervenheilkunde*, No. 18, 1883) regards Guiteau as "a mentally abnormal man," but does not give a very clear idea of what he means by this. His article is of a decidedly dilettante German nativistic character. The editors of the London *Times and Gazette* (September 8, 1883) express their astonishment at the evidence given by the prosecuting experts, and say if Guiteau was hanged on such expert

evidence, his execution was a judicial murder. Krafft-Ebing (*Zeitschrift für Psychiatrie*, Band, xl) says that the *British Medical Journal's* contradiction of Dr. Hammond's opinion contains no argument, but is only a poor attempt at witticism.

PREMATURE GENERAL PARALYSIS.—Under this title Dr. E. Régis discusses (*Journal de médecine de Bordeaux*, September 9, 1883,) the case of a man who became a paretic dement at the age of nineteen. Clouston had (*British Medical Journal*, September, 1877) reported a case who was attacked by paretic dementia at the age of sixteen. This case and those cited by Macleod, Bucknill and Tuke (*Psychological Medicine*, p. 324), and Spitzka (*JOURNAL OF NERVOUS AND MENTAL DISEASE*, April, 1877), at the ages of twenty-one and twenty-three respectively, seem to have eluded Dr. Régis' search. Dr. Régis, from this case, and from an examination of the literature, concludes : 1. Paretic dementia is a disease narrowly confined to the middle period of life, during which it, as a rule, manifests itself. 2. The real, immediate cause of this affection appears to be a deviation of the normal anatomical progress, which extends, at this time, into the minute cerebral structure ; most frequently paretic dementia is attributable to no other somatic cause. 3. Besides this type of paretic dementia, which becomes developed in its own time, and which is the true paretic dementia, there are other cases which occur unexpectedly some time before, others after, the ordinary period, which may be said to range between the ages of twenty-five and sixty-five years. The first may be designated as premature paretic dementia, the second as late paretic dementia. 4. Cases of paretic dementia before the age of twenty-five years are very rare, and only a few cases are recorded. Cases coming on before the age of twenty are still more rare, only one case being reported independently of Régis' case (which is, as already stated, an error). 5. The premature type, contrary to the true, has, as a rule, a powerful etiological factor, such as heredity, syphilis, traumatism, saturnism, or general or local diathesis. These causes appear to determine in these cases an early predisposition, and to prematurely place the brain in those conditions in which it is found in mature life. 6. Premature paretic dementia has, as a rule, a slower progress and a longer duration ; it is more frequently subject to remissions, and is susceptible of a more or less permanent recovery, thus according with the possible curability of paretic dementia developed under the influence of a material or specific cause. Wille (*Irrenfreund*, No. 1, 1873) and Coffin (*Annales médico-psychologiques*, tome vi, série iii), who have also been ignored by Dr. Régis, claim that paretic dementia in a man under twenty-one is always of syphilitic origin.

BONE DEGENERATION IN THE INSANE.—Dr. J. Wigglesworth (*British Medical Journal*, September 29, 1863) states that while

the number of cases included in his communication are small, his conclusions may be thus formulated : 1. The ribs of lunatics are perfectly healthy in a minority of cases. 2. The majority present some slight degree of change, which consists in a slight thinning of the external layer of compact bone, and slight enlargement of the Haversian canals ; but that these changes are in general merely trivial, and to be correlated with the general failure of nutrition so common in insanity, or with the presence of a wasting disease such as phthisis, or with the advent of old age, or it may be with a combination of all of these ; these cases possess, therefore, a general, not a local, significance. 3. In a minority of cases, provisionally estimated at ten per cent., clear and precise lesions are found, produced by considerable internal absorption, which renders the bone very porous and brittle, and brings it under the category of the condition known as osteoporosis. The proportion of cases in which this affection occurs being thus considered to be much higher amongst insane than amongst sane individuals, it would appear to have some causal connection with insanity, of the nature of which we are as yet ignorant. In a general way Neumann (*Neurologisches Centralblatt*, September 15, 1883) has expressed similar opinions.

INSANITY PLEADED AS AN EXCUSE FOR CRIME BY A LUNATIC.—Dr. Jas. H. McBride, Superintendent of the Wanwatossa Asylum for the Insane, in his discussion of the mental status of Guiteau (*Alienist and Neurologist*, Oct., 1883), cites the following case, in which a lunatic pleaded insanity as an excuse for crime : Mrs. Crocker, a well-educated lady who had studied law, a resident of Milwaukee for many years, but latterly a resident of Washington, D. C., because of certain differences between herself and her step-mother, came from Washington to Milwaukee, appointed an interview with that lady at a lawyer's office, and without immediate provocation, shot at the step-mother. At the outset of her trial, she pleaded insanity, claiming that the shooting was done in obedience to a command received at night from her dead father's spirit. She insisted that at the time of the shooting she was insane, exhibited much interest in the trial, and suggested to the attorneys questions to be put to experts. Upon the witness-stand, she claimed that she was insane at the time of the shooting, and underwent a long cross-examination without contradicting herself. She was acquitted on the ground of transitory mania, and set at liberty, but was soon after arrested for another offence, and, upon trial, being declared insane, was committed to the Wanwatossa Asylum, where she now is. She was undoubtedly insane at the time of her first crime ; the insanity having existed for years previous. She now states that the *plea* of insanity at the time of the first trial was false, that she did not entertain the delusion mentioned, and only entered that plea to escape punishment. There is no doubt that her statement is true, and that her pretended

delusion that she was influenced to commit the deed through the commands of her father's spirit, was manufactured for the occasion. Such a delusion would harmonize with her other mental symptoms ; it is totally unlike those she is known to entertain, and a belief in the communication with spirits is one which she is now, and always has been, prompt to ridicule. She is shrewd and intelligent, but entertains many wild and extravagant ambitions like those of Guiteau, but is intellectually his superior. In this paper Dr. McBride claims that Guiteau presented *congenital defect of organization*, and to this had been added mental degeneracy.

EARLY SYMPTOMS OF PROGRESSIVE PARESIS.—Dr. W. B. Goldsmith (*Archives of Medicine*, August, 1883), comes to the following conclusions : 1. That the striking and characteristic group of symptoms ascribed to the disease by Calmeil in 1826, and having greatest prominence in most text-books since, is to be found only exceptionally in the cases of to-day at the time when the diagnosis is most important. 2. That physical and mental symptoms usually appear nearly synchronously, so that the physician has the presence or history of both to aid him when called upon for a diagnosis, and it is probable that most of those who report cases of general paralysis without mental impairment are not sufficiently expert to recognize a moderate degree of dementia. 3. That their observations agree with those of most writers in making defective articulation the most frequent and characteristic early motor symptom. 4. That changes in the pupils and disorders of gait are less frequent and have less value in diagnosis than is usually ascribed to them, and that given pupillary changes are no more frequent in one stage of the disease than in another. 5. That the patellar-tendon reflex is found markedly supra-normal in nearly twenty-five per cent. of general paralytics, and that the presence of this symptom is of strong corroborative value in diagnosis, though its absence has none, and that no peculiar condition of the patellar-tendon reflex can be associated with any given stage of the disease. 6. That hallucination or impaired function of the special senses is very rare as an early symptom ; hallucination (auditory) having been noticed first in but one case, and impaired vision but once in a syphilitic case. The diminution in the sense of smell, which Voisin thinks very frequent in the early stages, was not noticed in any of my cases, though it may have been present and escaped attention in some, as slight failure is difficult to recognize. 7. That it is of great importance in the case of a patient showing mental symptoms to inquire carefully for a history of convulsions or loss of consciousness, as these were the first motor symptoms in twenty of my cases. While in a general way correct there is neither any thing new nor very original in these conclusions. They do not demarcate between the different types, and Dr. Goldsmith depends in part on the negative evidence of friends, which simply amounts to the statement that they did not *notice*

this or that. There is much truth in the last clause of the second conclusion, as in all reported cases of alleged progressive paresis without insanity, mental confusion is reported with the statement that it was scarcely noticeable. There are no ophthalmoscopic results given by Dr. Goldsmith. Dr. Goldsmith's cases favor the view that progressive paresis is a vaso-motor affection.

UTERINE LESIONS AND MELANCHOLIA.—Dr. H. T. Byford, Chicago (*Weekly Medical Review*, July 14, 1883), reports three not very well described cases of what he calls "melancholia," which are cases of possible hysterical insanity but certainly not "melancholia." In the first he resorts to potassium bromide (which would be suicidal treatment in melancholia) and gynecological procedures. From the results so obtained, (the cases have been kept only a few months under observation after their so-called recovery,) he concludes: 1. There is some direct relation between uterine flexure and hysterical symptoms, especially melancholia. 2. This melancholia is not dependent entirely upon occlusion, for in some cases there is neither occlusion nor dysmenorrhœa. A primipara with antelexion without occlusion, whose life was perfectly miserable from despondency, fainting spells, excessive irritability, and foreboding of trouble, experienced no relief from tonics, local stimulants, or glycerine plugs, but improved from the first introduction of an elm bougie. Ammoniated tincture of valerian had afforded *temporary amelioration*. 3. That the peculiar dilating or rather straightening action of the elm affords much relief. 4. That the beneficial action of the slippery-elm bougie is not merely one of stimulation, for in some cases the symptoms are worse until the stimulation has subsided. There are cases in which the bougie increased the local discomforts, and yet caused improvement in the nervous condition after its removal. 5. That congestion in any part of the uterus is not a constant factor. 6. That ovarian irritation is not the cause of this hysteria, for the bougies could not relieve ovarian irritation so promptly, since they have rather an irritating than soothing effect upon the pelvic organs. 7. Dragging of the uterus upon the ovaries through the broad ligaments is not the cause, for the change produced in the position is scarcely appreciable at first, and not comparable to the change constantly produced by filling the bladder. 8. That iliac pains accompanying antelexion are not of ovarian origin. 9. That pessaries do not afford as decided relief to the general nervous symptoms as elm bougies. 10. That cutting operations, which endanger the life or health of the patient, are unjustifiable for stenosis until gradual dilatation of this kind has been tried. The lower part of the cervix incised for stenosis should be sewed up, and the physician incising the same compelled to pay the bill for sewing it up. He further says that he has seldom failed in relieving the nervous symptoms by dilatation with the elm bougies, although the occurrence of pregnancy, the

irregularity or entire cessation of attendance by the patient, the coëxistence of pelvic inflammation, and the "natural cussedness" of the disease, have sometimes baffled him. It is obvious that the procedure is not as infallible as Dr. Byford claims, and probably produces its alleged effects, like incision of the cervix, by an impression on the imagination. That the latter has good effects is shown by the cases reported by Dr. Marion-Sims. Certainly Dr. Byford's cases are not well described and the results not distinguishable from those of Dr. Marion-Sims. In all nervous diseases, and especially the psychoses, the question of diagnosis settles the question of cure, for the dilettante alienist cures cases which subsequently re-enter asylums with the same psychical disturbance they had before and during the cure.

MELANCHOLIA.—Dr. Geo. Bayles (*New York Medical Journal*, August 18, 1883) discusses the etiology of melancholia, but under this term he includes all conditions of depression, a circumstance which completely destroys the value of his researches. Mendel (Eulenburg's *Real-Encyclopædie*) defines melancholia as a functional cerebral disease having for its foundation a morbid excitability of the sensory side of the psychical life. Spitzka ("Insanity, its Diagnosis, Classification, and Treatment") defines melancholia "as a form of insanity whose essential and characteristic feature is a depressed—*i. e.*, subjectively arising—painful emotional state, which may be associated with a depression of other nervous functions." The typical melancholia has three stages, which, while not clearly demarcable at their beginning or end, are sufficiently so to serve for clinical purposes. The first stage of depression, in which somatic phenomena coëxist with psychical depression, does not seem to impair the patient's judgment. He is a prey to the "blues," which he cannot account for and cannot shake off. In the second stage of melancholia properly so called, the patient has lost the power of forming a correct appreciation of his state, and becomes a prey to delusions of depressing character; he is lost, damned, and sentenced to be hung because he deserves it. As the somatic or psychical symptoms predominate, the melancholia takes on a purely psychical or a hypochondriacal type. In the third stage the *stadium decremento* affections cease and give place to so marked a degree of pleasure that the patient seems to be exalted. Besides this type there is the melancholia abortiva, the reasoning melancholia of the French, or the melancholia simplex of the English, the hypomelancholia of Spitzka, which is an extension of the first stage of typical melancholia without developing delusions or hallucinations or reaching the second stage. It is a pure emotional insanity, a pathological sadness, and nothing more. The melancholia attonita reaches the second stage, but passes into a seeming condition of stupor, resulting from the patient's absorption in depressing delusions. Periodical melancholia is also an atypical form; a chronic

psychosis recurring in periods. Melancholia, according to Mendel, may last from a week to a year; the mean duration is nine months. Recovery has, however, resulted in a case of six years' duration; sixty to eighty per cent. of recovery. In Mendel's opinion melancholia may end in recovery, in secondary monomania, or dementia, or in death from any intercurrent affection, generally phthisis. Treatment should be directed to the removal of the cause. Mendel finds morphine of value in nearly all cases. He gives it in $\frac{1}{4}$ of grain dose gradually increased till $\frac{3}{4}$, thrice daily. If after two weeks' use no effect is produced, the use of the drug should be abandoned.

PSYCHICAL SYMPTOMS FROM POTASSIUM BROMIDE.—Dr. W. A. Hammond (*Journal of Psychological Medicine*, 1868), Dr. Böttger (*Allgemeine Zeitschrift für Psychiatrie*, 1877), and Dr. Beard (*JOURNAL OF NERVOUS AND MENTAL DISEASE*, July, 1881), have reported cases in which potassium bromide produced symptoms resembling those of progressive paresis. Dr. Beard has also reported a case in which the drug produced melancholia with frenzy. To these should be added the cases recently reported by Drs. Janeway and Winters (*New York Medical Journal*, August 18, 1883), in which visual hallucinations had preceded the other symptoms of bromism.

FOLIE DU DOUTE. — Dr. Tamburini (*Rivista Sperimentale di Freniatria*, Anno ix, Fasc. 1) classifies in a very able and critical article, the various types of imperative conceptions under the following heads: First, the metaphysical, in which the patient is impelled to wander in endless queries of a transcendental nature. Second, the realistic variety, in which the patient is troubled by doubts respecting trivial matters which render him unable to act. Third, the scrupulous variety, in which the patient is troubled by a morbid conscientiousness respecting matters unrelated to the domain of ethics. Fourth, the frightened variety, in which the patient has a morbid fear of compromising himself by very unimportant acts. Fifth, the calculating variety, where the patient is obliged to continually calculate. Sixth, the tactile variety (mysophobia, etc.), in which ideas of defilement, not necessarily or even ordinarily of an hallucinatory or even delusional character, occur. Ball, as has been pointed out by Tamburini, errs in applying the phrase *avec delire du toucher* to this variety, as the essential psychical feature is an imperative conception arising in a normal mind.

ACUTE HALLUCINATORY CONFUSION FROM LEAD-POISONING. — Moeli (*Charité Annalen*, Jahrgang viii) reports the case of a twenty-eight-year-old painter, who, at the outset of an attack of lead colic became anxious and excitable, cried out that he was going to be killed, and had hallucinations of seeing bugs flying at

him and of being burnt, for which reason he wanted water squirted on him. The patient recovered in fourteen days. In a second attack, three years after, he complained of seeing giants about to attack him, and of fire being near him, and displayed much the same symptoms as before; recovering in the same time. In Moeli's opinion the psychical phenomena resemble those of alcoholic delirium, and are secondary to vaso-motor phenomena, produced by the pain of lead colic, and not directly due to the presence of the lead. This explanation is a very probable one, and is in accord with the one given by Goodheart (*JOURNAL OF NERVOUS AND MENTAL DISEASE*, 1882), and is further borne out by the reports of Kiernan (*JOURNAL OF NERVOUS AND MENTAL DISEASE*, 1881) and Ulrich (*Allgemeine Zeitschrift für Psychiatrie*, Band xxxiii).

"DELUSIONS OF THE MEMORY."—Meynert (*Fahrbücher für Psychiatrie*, Band iv) describes a case of what may be very well termed delusions of the memory. The patient claimed to have a fleeting perception of a kind which was marked by some detail. He said he remembered having seen in the forest a cleared space in which grew a large flower. This was based on an hallucination which was remembered as an actual perception. Of this class of cases Meynert gives the following explanation: In epileptics hallucinations are produced by a collateral hyperæmia, which engenders an irritation; a pronounced contraction of an arterial vessel produces a diminution of pressure in the collateral branches. These phenomena do not give rise to hallucinations, but when the individual returns to consciousness, the hyperæmia in question produces a delusion of the memory. The subjective sensation is reproduced in such colors, under the influence of the hyperæmia, that the sensorium preserves the impression of it, and the hallucination remains as an actual remembrance.

MELANCHOLIA FROM MEDULLO-SPINAL DISEASE.—It has long been known that among the other vaso-motor disturbances of locomotor ataxia, melancholia has been observed. Schüle (*Irrenfreund*, No. 2, 1883) describes a case in which at various times there occurred cardiac palpitation, irregular cardiac action, albuminuria, glycosuria, and neuralgia. The patient was a marked case of agitated melancholia, and showed the anxious excitement of that psychosis. From the symptoms Schüle inclined to the opinion that the case was not of primary cerebral origin, but the secondary result of a medullo-spinal affection. The patient recovered.

EYE-AFFECTIONS IN THE PSYCHOSES.—Dr. Borysiekiewicz (*Centralblatt für Augenheilkunde*, S. 494, 1883) finds, after an examination of one hundred and seventy-one insane, that there were two very frequent ocular lesions. Lesion one consisted in a diffusely dim and irregularly sized pupil and retinal opacity,

which was most frequent in paretic dementia. Lesion two consisted in bluish discoloration of the optic nerve in its outer half and *in toto*, and was frequent in alcoholic cases. Of twenty-eight paretic dementes, fifteen gave positive results. In eight of these, lesion one was found, in atrophy of the optic nerve, in one neuro-retinitis exudat.; in three cases lesion two was found. Pupillary aberrations occurred twenty times. Pupillary reaction was normal in seventeen cases, not taken in one, and abnormal in ten cases—in one of which one side reacted normally, the other did not. Facial paresis was found in fourteen cases. In four cases mydriasis and facial paresis were on the same side; in five cases, on opposite sides. Two cases of mania presented the first lesion, and in two, pupillary indifference. Of twenty-nine cases of monomania, there were four presented lesion one; three, lesion two; one, retinal anæmia; one, retinal hyperæmia; and one, retinitis. Of the one hundred and seventy-one, eighty-four presented anomalies: of these, eighteen presented lesion one; forty-two, lesion two; nine, retinitis; seven, hyperæmia opt. et ret.; six, atrophy of the optic nerve; two, anæmia opt. et ret. It will be obvious that these findings, while of interest, are scarcely *en rapport* with the patients' mental condition, and are accidental complications.

ORIGIN OF HALLUCINATIONS.—*The Medical Press and Circular* reports the following case: A drunkard labored under an hallucination of hearing. He rose every morning determined to keep sober for the day. Unfortunately, the road to where he worked passed by a certain public-house, and at some distance from this fatal spot he became conscious of two voices crying in his ear; the one, "He will not go in," the other, "He will go in." As he got near the door, the voice of the tempter increased in force till it quite drowned that of the good angel. The matter always ended by his going in and taking a drink, when the hallucinations ceased as if by enchantment. Goethe has shown that it is possible to produce hallucinations at will, by thinking intently on the subject of the hallucinations. In certain persons very active reproductions of memory take an hallucinatory form. These hallucinations would not be accepted by normal individuals as real occurrences. In a man affected by alcohol or by insanity, correctional power would be lost, and the conduct of the individual would be guided by the hallucinations. In the present instance, the struggles of the drunkard with himself were transmuted into auditory perceptions, temporary in character, and of the variety known to alienists as causal hallucinations. Hallucinations of this kind and origin are not infrequent among progressive paretics.

MORAL IMBECILITY.—Dr. T. Woods (*Lancet*, October 21, 1882) reports the following case: W. is six years and seven months old; his genital organs are as fully developed as in the adult, and his

pubes covered with a thick crop of dark-brown hair, presenting the appearance of a youth of seventeen or eighteen ; hair is also commencing to grow on his upper lip. His height is about four feet nine inches, and he is big and muscular in proportion. His voice, for more than a year, has been gruff and hoarse, as that of puberty, and he has had hair on the pubes since he was three years of age. He was so wild and mischievous that the magistrates placed him in an industrial school. He has now been committed for five years. He took away a tradesman's cart, upset it on the roadside, cut the harness into pieces, and galloped the horse about till he was tired of the fun, and then let it go. His clothes were taken away from him, and he was put to bed, to keep him from further mischief. He, however, managed to find his grandfather's best black trousers, cut off the bottoms, so that they might fit him, and escaped through the window. One day recently he found some pigs straying, and drove them some miles to a butcher, and tried to sell them ; failing to do so, he gave them away to some one he met. It required three policemen to take him to the workhouse (to which he was sent until arrangements could be made for his removal to the industrial school), and when they had carried him there, face downward, as they were compelled to do he smashed a bedstead into atoms, kicked the plaster off the walls, cursed and swore in a most fearful manner, and had to be removed to the police-station for safety. He was not a large baby at birth, but grew rapidly after twelve months. He commenced to cut his permanent teeth between four and five years of age. His father is in a lunatic asylum, a melancholiac. This is one of those "queer children of insane parentage" whom Dr. J. P. Gray has never encountered, although Drs. Godding, Nichols, Hughes, and every American and European alienist of repute have.

PSYCHICAL SYMPTOMS AND EAR-DISEASE.—Fürstner (*Berliner klinische Wochenschrift*, No. 18, 1883) describes cases in which ento-ic sounds due to anæmia produced a sharp melancholia. The patients' anæmia was cured ; the sounds disappeared, and then their psychosis vanished. In other causes aural disease furnished support for insane ideas. In another class of cases periods of excitement accompanied middle-ear suppuration. In one case a profuse hyoid aural discharge brought a melancholia to an end.

SIALORRHEA IN THE INSANE is often a very disagreeable complication. Among the measures prescribed for its relief is atropine. Dr. E. Duiat (*Giornale Internazionale de Science Med.*, July, 1883) has had very good results from the hypodermic use of one to three milligrammes of atropine.

FAMILY COLONIES FOR THE INSANE have been found of most benefit in the case of incurable cases. Helweg (*Hospitals Tidende*,

Band iv, 1883) is of opinion that in certain curable cases similar colonies would have beneficial results.

TREPHINING IN TRAUMATIC INSANITY.—Dr. J. P. McGee (*Mississippi Valley Medical Monthly*, Feb., 1883) reports the following case: In 1863, a child had his frontal bone crushed by a kick from a mule. He recovered, but a deep depression remained in the forehead. Thirteen years subsequently he manifested cephalalgia, occasional dizziness, and four years later periodical attacks of insanity occurred. June, 1882, Dr. McGee trephined and removed a disk of bone from the under surface of which an exostosis projected through the dura mater. The pain immediately vanished, and has not returned, and the attacks of insanity are growing gradually less frequent and less severe. The opening in the skull, left by the removal of the disk, is firmly filled with osseous substance, and he has no sensation to remind him that his head was ever hurt. The trephining was, to say the best, useless. Had it been of any value the effects would have been immediate, due to the removal of the source of irritation. That the attacks are growing less severe seems to show that there were cortical changes which would be unaffected by trephining. The great trouble in the majority of these cases is that what has been aptly styled the "traumatic neurosis" results, and then the simple removal of sources of irritation is without effect.

EYE-AFFECTIONS IN PROGRESSIVE PARESIS.—Charles Dutugue (*L'Encephale*, Jan., 1883) claims that in the first stage of progressive paresis there is always irregularity of the pupils, papillary congestion, retinal, arterial, and varicose dilatation. In the second stage the lesions are more marked, with the addition of decided papillary and peripapillary œdema. The disk is often obscured or masked by œdema, proportionate in extent to the duration of the disease. In the last stage, the papilla is small, flat, and gray in color; the vessels which normally give it a pink tint having disappeared, from optic atrophy. Atrophy of the choroid, retinal hemorrhages, and granulations of the retina and choroid also occur. These findings are but an extension of those of Clifford Albutt ("Ophthalmoscope in Nervous Disease"). C. Albridge (*West Riding Asylum Reports*, vols. i and ii), Monti (*De l'ophthalmoscope dans les maladies Mentales*), and Spitzka (*JOURNAL OF NERVOUS AND MENTAL DISEASE*, 1877, page 270) have shown that these claims are much too positive, and that cases can be found in which eye-lesions are absent.

DOES THE STATE PRESUME EVERY MAN TO BE SANE?—This question was raised by Mr. Scoville during the Guiteau trial. He insisted, in accordance with the spirit of the law which presumes every man innocent till proven guilty, that sanity consti-

tuted a necessary part of the question of innocence, and was, therefore, an affirmative issue to be proven by the prosecution. In support of this he cited one decision. The Indiana Supreme Court (*American Journal of Neurology and Psychiatry*, May, 1883) has recently affirmed this point raised. Mr. Scoville in the strongest manner in a case appealed from a lower court. The defence in the case was insanity of the prisoner. On the trial the judge charged that the law presumes sanity in all cases, and the burden of overthrowing the presumption is upon the person who alleges insanity ; but if the evidence given by defendant has been sufficient to raise a reasonable doubt of his sanity, then the general question is presented to the jury whether or not the crime was committed by him while responsible for his acts. If a reasonable doubt exist as to the defendant's sanity, he is entitled to the benefit of the doubt. The Supreme Court says : " The proposition that the burden was upon defendant of creating by affirmative evidence as to his sanity is erroneous. The burden was upon the State to establish, beyond a reasonable doubt, every material averment in the indictment. One of these was malice. There can be no criminal intent when the mental condition of the accused is such that he is incapable of forming one, and the burden is upon the State to prove that when the offence was committed the mental condition of the defendant was capable of forming an intent. The burden is upon the State."

SEXUAL PERVERSION.—Dr. P. M. Wise, of the Willard Asylum, reports (*Alienist and Neurologist*, Jan., 1883) the case of a woman who, although she married and became a mother, displayed aversion to normal sexual indulgence. Being reduced, she sought shelter in an almshouse. Here she encountered a young woman, who had been born of an insane mother, with whom she ultimately set up house-keeping ; she acting as husband and dressing in men's clothes. Sexual intercourse was indulged in between the two, the patient having an enlarged clitoris. She finally became demonstrably insane and entered the Willard Asylum. This is the third case of the kind reported in the United States. Dr. H—— (*Medical Record*, March 19, 1881) having been the first to report a case of the kind. A second was reported by Dr. Blumer (*American Journal of Insanity*, July, 1882). The case just cited is the third, and a fourth was reported by Dr. Ferris, in the April number of the JOURNAL.

CONTRACTS WITH GOD AND SANITY.—Dr. Ball (*L'Encéphale*, No. 1, 1883) has resurrected the following case, first reported by Dr. Chatelain (*Annales médico-psychologiques*, July, 1866). Some years ago a notary died at Neufchatel, whom everybody supposed to be perfectly sane, but among whose papers was found a document—nothing less than a regularly drawn up partnership

contract between himself and God. Isaac Vigneaux believed that God was his partner in the liquor business. The Almighty was to give His blessing in lieu of capital, and His share of the profits was to be given to the poor. Isaac prospered, at all events; and every year regularly distributed 7,323 francs, 35 centimes to the poor of the city. Ball regards this man as at least of doubtful mental condition, guided, no doubt, by the agnostic spirit so prevalent at present. It is scarcely scientific to look upon the case from this stand-point, and Dr. Chatelain, who viewed it from the stand-point of religious people, regarded the man as sane. The truth about this case is, that the man was a devout individual, who had the highest respect for business forms, and made a covenant with the Deity in this manner. As Dr. Ray says ("Mental Pathology"), the procedure, other than its name, was a measure adopted by very religious people of unquestionable sanity. A partnership was the man's idea of the proper method of doing business. He did not *imagine* God was partner with him other than in the sense He was partner with every Christian who covenanted with Him; but this idea of partnership was Mr. Vigneaux's way of expressing intimate relationship. It was, as Ray says, only an eccentricity in the true sense of that term; doing a very proper thing in an unusual manner. This man was, however, a notary, and it may be asked: Why did he expose his will to the possible chance of rejection by such a procedure if he were a sane man? Here, curiously enough, turns up a circumstance creditable to his acumen as a lawyer. In the fourth volume of *Causes Célèbres*, published in Paris in 1736 by Jean de Nully, is to be found a similar case, in which the Court decided that such a contract was no evidence of insanity. As Ray ("Mental Pathology") says, it can scarcely be doubted that Vigneaux's professional studies included these *Causes Célèbres*, which are well known to every French lawyer. Vigneaux did not entirely disinherit his heirs, and on his will being refused probate they disposed of the property as he directed.

TRANSITORY FUROR FROM QUININE.—Dr. F. Delafield, at a meeting of the New York Medical and Surgical Society, reported a case of transitory furor (*mania transitoria*) caused by a large dose of quinine. The excitement disappeared in a few hours. Cases of insanity of like causation have been reported by Kiernan (JOURNAL OF NERVOUS AND MENTAL DISEASE, October, 1880). They are, perhaps, more frequent than is generally supposed.

FRENCH PROCEDURES IN MURDERS BY THE INSANE.—According to the *Detroit Lancet*, in France a lunatic who commits a murder is not always tried. A certificate often locks him up for life, or until his recovery. This system is not very satisfactory, because it leaves a large margin for arbitrary favor. Attschuller,

the Prussian who fired at random on the crowd on the *Boulevard des Italiens*, Paris, killed two persons and wounded two others, since he is deemed a lunatic will not be tried for murder. Being a foreigner, the French Government will not keep him out of the way of doing more harm, but simply expel him as a dangerous person, and the foreign nation to which he will be sent must look out and deal with him as it sees fit. At one time patients were largely exported to the United States, by Switzerland and France, who had committed minor delinquencies.

INSANITY FROM CARBONIC-OXIDE POISONING.—Dr. R. Grauck (*Charité-Annalen*, 1883, S. 402) reports a case in which, after carbonic-oxide poisoning, there resulted a dementia with subsequent unsystematized delusions and silly talk. The patient died suddenly, and marked cerebral changes, evidently of a secondary nature, were found on autopsy. A second patient remained for twenty-four hours unconscious after the poisoning. For a month thereafter dementia of the stuporous variety was present. In five months the patient recovered. Moreau (de Tours) has observed similar cases.

KATATONIA.—This psychosis, first described by Kahlbaum, whose results were corroborated by Hecker, Brosius, Kiernan, Lafenauer, and others, formed the subject of a paper read before the New York Neurological Society by Dr. W. A. Hammond (*New York Medical Journal*, May 5, 1883). He reports the following cases: In one case, a merchant, the first symptom noticed by Dr. Hammond was a condition of exaltation; he entered the office with all the airs of a prince, and answered all questions by repeating in a supercilious way, "And the Lord spake unto Moses, saying." This he repeated during the entire visit. Eight days previously, without any assignable cause, he had passed into a condition of melancholia attonita. By extending his arm at right angles to his side, it was noticed that it remained in that position for thirteen minutes, and then descended slowly to his side. Ophthalmoscopic examination being demanded, the patient would not enter the dark room. Upon endeavoring to carry him there, he at once became as rigid as a bar of iron—his muscles were in a state of extreme tension. This patient displayed one of the symptoms called "verbigeration" by Kahlbaum in a very striking manner on a second visit. He began to speak in a staccato manner—"I-think-I-shall-go-to-the-theatre-to-night-te-see-Booth-in-Ham-let." On being asked why he spoke in this manner, he said: "Be-cause-I-choose-to-do-as-I-choose-to-do, and that-is-why-I-speak-as-I-choose-to-speak." "But," said Dr. Hammond, "it is a silly way of talking." "I-came-to-you-for-med-ical-advice,-and-not-for-a-les-son-in-elocution." A second case, a young German, exhibited the cataleptoid condition, a tendency to utter high-flown language, and to assume histrionic attitudes, exclaiming at intervals: "My lord, it shall be done!" He had

passed through melancholia before presenting himself. He frequently cried and groaned, said afterward that the reason he did not speak was because he believed it had been decreed that if he uttered a word his mother would instantly die. The third case, a physician, was seen in the stage of melancholia attonita, attended with cataleptoid symptoms. If physical efforts were used, his whole muscular system was thrown into extreme tension. Another case presented much the same symptom. Dr. Hammond says that "katatonia is of rather favorable prognosis. It appears in the first stage, at least, to be a vaso-motor affection characterized by a paralysis of the vascular coats, and by consequent cerebral hyperæmia."

CLASSIFICATION OF INSANITY.—Kiernan (*Detroit Lancet*, February, 1883) gives the following classification of insanity: primary monomania, which corresponds in part to the systematized insanity and mania raisonnante of the French, the primäre Verrücktheit of the Germans, the imbecility of the first grade of Ray and Nichols, the chronic mania of Lockhart Robertson and some other English authors, the first variety of the third type of Celsus, melancholia in the sense of Burton, Esquirol's monomania and lypemania, the types of insanity included in Krafft-Ebing's psychical degenerative states, Morel's hereditary insanities, Luys' third class, the intellectual insanity of Hammond and Maudsley, and certain cases of chronic mania of the asylum reports. Secondary monomania, which differs from primary monomania in the fact that the former is secondary to morbid conditions affecting the patient's constitution. In it there is a change of character, in the latter there is none. Chronic mania with confusion of ideas, which is a form in which the derangement of the associating power is much more marked; chronic mania with imbecility, which is a combination of primary monomania, with ideas and delusions which bear the same relation to those of the higher types of monomania that ideation of the child does to that of the grown man. Epileptic alienation: the reason for the formation of the types into one class of epileptic alienation is self-obvious. Recurrent insanity, which is called also periodical insanity or mania, recurs at intervals more or less regular, sometimes bearing relation in the female to menstruation. The form is the same in each individual case, and its essential characteristic is periodicity. Circular insanity, which is called also folie circulaire and cyclothymia, is a typically cyclical affection, in which mania and melancholia follow each other in rapid alternation. The melancholic stage is usually in precedence, and the alternation varies considerably in the various types, but is the same for each individual case. Idiocy, which is generally regarded as a condition in which the patient is congenitally mentally affected from teratological defect. Imbecility, which is regarded as one in which pathological defect during uterine life is the cause; strictly

speaking, the latter is a higher form of the first. Hebephrenia, which is called also insanity of pubescence or masturbation, is a progressive affection, always beginning at or after puberty. It runs a more or less cyclical course, beginning with depression. There are emotional states, and affective states of an erotic tinge. When the latter exist religious ideas also appear. There are vague and ill-defined delusions of persecution. Simulation is not an uncommon phenomenon. They are disgustingly and obtrusively egotistic. There is a lack of genuineness in their melancholic and maniacal states. Katatonia corresponds to certain cases of melancholia described by Tuke, Sankey, and others. It is a form of insanity originating in early life, which commences by melancholia and passes through maniacal and cataleptoid alternations, attended by the use of theatrical words, manner, and gestures during the period of calm or moderate maniacal excitement. Acute mania: the patient displays violence, is noisy and destructive. There is much motor excitability, and delusions, if existent, are optimistic in character. Lypemania, or melancholia, or dysthymia (of Kahlbaum) exhibits just the converse phenomena. These patients are possessed of either an extended sadness or of purely subjective delusions of persecution. There are usually four types, with frenzy, agitata, attonita, and simple. Progressive paresis, the paralytic dementia, progressive paralysis, general paresis, general paralysis of the insane, general paralysis of various authors, is a type of insanity in which marked physical symptoms affecting the pupils, lips, gait, etc., are commingled with, as a rule, expansive unsystematized delusions. Dementia, which is characterized by a marked weakness of all the mental faculties.

TORTURE AND SEXUAL EXCITEMENT.—The relation between certain auto-mutilations and sexual excitement was long ago remarked by Montaigne, who said that "lust seeks self-stimulation even in pain." It has been noticed that hebephreniacs often mutilate themselves, not from a sense of penance, but with obvious enjoyment. Dr. G. M. Cox (*Alienist and Neurologist*, April, 1883) cites an instance of the relation of these seemingly opposed agencies. The victim was a man—who had a wife and several children—of good character, and otherwise sound mentally; but who, at stated periods, displays certain peculiarities. He has never been known to cohabit with a lewd woman nor to speak an immodest word; yet he is a regular visitor and, in his way, a liberal customer of houses of ill-repute. He goes early in the afternoon, selects two of the largest girls in the house, repairs to a private room, and locks the door. He divests himself of all his clothing, except his trousers and boots. Then, lying on the floor, he commands his companions to walk over his naked chest, neck, and face, taking care to stop and grind his flesh with their boot-heels. He then buys wine for his tormentors, but drinks none himself. This system of self-torture goes on for a couple of hours. It is said that

the ecchymosis thus produced soon disappears. The peculiar satisfaction experienced by the "flagellants" was evidently of an unrecognized sexual origin, and the subject needs investigation.

ANOMALIES OF SEXUAL FEELING IN ANIMALS.—A condition allied to the anomalies of sexual feeling in man has recently been described by Dr. Caton (*American Naturalist*, April, 1883) as occurring among animals. Ulrich had previously called attention to the fact that sexual perversion existed among the coleoptera.

FORENSIC ASPECTS OF FOLIE A DEUX.—Dr. J. G. Kiernan (*Alienist and Neurologist*, April, 1883) cites three instances in which several persons acquiesced in insane delusions, and carried out the objects of these. He believes that the subject is of much forensic importance.

TREATMENT OF MELANCHOLIA.—Dr. J. G. Kiernan (*Detroit Lancet*, March, 1883) makes the following remarks upon this subject: "Should the patient be removed from home? He should, at all events, be removed from the surroundings under which his insanity developed. To do this it may in many cases become necessary to send him to an asylum; but where he can be transferred from his home under tender guardianship and can travel, this measure will not be found necessary. Cheerful surroundings and encouragements to engage in pursuits different from those usual to the patient will often prove of value. Cold sponging helps the deficient capillary circulation. Morphia and cannabis Indica are preëminently indicated. Glonoine and amyl nitrite are especially useful in the atonic condition, and sometimes cut short the affection in the first stage. Tonics are, of course, indicated. When practicable, alcoholic stimulants are of great value. Connolly found sherry-and-egg to act well as a night-cap, and egg-nogg has very similar effects. Turpentine enemata often have good effects on the anæsthesia of the intestinal canal. Artificial feeding is often and preëminently indicated in these cases. The Davidson syringe, with a long tube, passed through a wooden gag with a large opening therein, is the best means of administering food. I have fed patients for months in this way. To prevent anæsthesia of the digestive tract occurring, the food should be given in small quantities frequently repeated. Egg-nogg, alternated with beef-tea-and-egg, is the best form of artificial food. All somatic complications should be guarded against. Emmenagogues should be given to amenorrhœic females. The muscles of the chest walls should be faradized, and, where practicable, massage performed. Constant watchfulness is required in all cases of lypemania. The patient should be induced to labor where close surveillance is practicable. In the first stage, conversation and surroundings of an intelligent, stimulating nature produce a good effect on the patient."

PROGNOSIS IN INSANITY DEPENDENT ON ARTIFICIAL FEEDING.—Dr. H. Sutherland (*Journal of Mental Science*, July, 1883) claims that, first : Prognosis is good when there is only a disinclination for, not a distinct refusal of, food, Prognosis is bad when there is a persistent refusal of food. Second : Prognosis is good when disinclination and refusal of food depend upon some removable bodily cause. Prognosis is bad when the bodily cause is irremovable. Third : Prognosis is good when the refusal of food occurs during a first attack of mental alienation. Prognosis is bad if the refusal occurs during a second or subsequent attacks. Fourth : Prognosis is good if, after once being fed artificially, the patient takes his food naturally. Prognosis is bad if the patient requires to be fed more than once, recovery being less likely to occur in cases fed a great number of times. Fifth : Prognosis is good if health and weight remain about the same. Prognosis is bad, and there is a tendency to death, if patients lose flesh while being fed daily. If the patient gain flesh rapidly he is likely to drift into dementia. Sixth : Prognosis is good if the patients wish to recover, but is bad if persistent suicidal tendencies exist. Seventh : Prognosis is good if therapeutical treatment and feeding be resorted to early, but bad if both be delayed. These conclusions are too positive ; they ignore the influence of the psychosis on prognosis, which vitiates their value.

RECOVERY AFTER TWENTY-ONE YEARS OF MELANCHOLIA.—Dr. Howden (*Journal of Mental Science*, July, 1883, p. 298) reports the following case. In 1860 a man was admitted suffering from melancholia with many delusions. Two years after he was demented, and rarely spoke. In 1864 he was "demented and dumb. In 1868 was in the same condition mentally, but had begun to assist the attendants in house-work. In 1870, when ill, he spoke, but remained as usual when well. In 1875 spoke in a low whisper for several months. His speech and intelligence gradually returned, and in 1878 he worked at his trade in the asylum workshops." During the dumb stage of his existence he was not "demented" in the ordinary sense of the term, as during the latter part of it he did intelligently what he was told, and expressed his wants in signs and sometimes by writing. On his recovery, thirteen years were a blank. His aphonia arose from a belief that he had not power to give expression to his thoughts in articulate speech. In another case a young woman entered as a case of acute mania, remained in an excited state for nine years, sank into a condition allied to dementia, and so remained for eighteen months. She was finally discharged recovered after nine years of treatment. Sufficient details of these cases are not given to diagnose the psychosis. The phenomenon was known to the older American alienists "as mania or melancholia, passing through dementia to recovery"; a somewhat incorrect designation.

SELF-RECOGNIZED INSANITY.—Dr. Morandan de Monteyel (*Archives de neurologie*, July, 1883) concludes that by the term self-recognized insanity (*folie avec conscience*) is meant the mental state of that class of patients who, having meditated on their psychic troubles, analyze them and recognize their morbid nature. This condition is found at the outset of all the vesanias and of a large number of cases of paretic dementia. It is met with sometimes in the course of paretic dementia, in melancholia often, and acute mania very frequently. It is relatively rare at the termination of the vesanias. Self-consciousness of insanity is sometimes a constituent element of mental alienation, sometimes merely superadded. It is a constituent element of hypochondria, agoraphobia, and impulsive insanities. It is superadded on mania, lypemania, erotomania, and allied states. The insane who recognize their insanity usually belong to the intelligent classes of society. Heredity is frequent among them. Paretic dementers are conscious of mental defect at the outset, but rarely during the course of the disease. The epileptics are not conscious. Self-recognition of insanity may be complete or incomplete. The first is more frequent. Consciousness is more frequent in general insanity than in partial insanity. The first class are, as it were, spectators at mental troubles, whose morbid nature they recognize, but which they are powerless to prevent. The preservation of consciousness in stupidity (melancholia, with stupor and stuporous insanity confused), is an argument in favor of the clinical existence of this form. Semi-consciousness is usually present in partial insanity. Hallucinations and megalomaniac ideas are rarely if ever recognized as of morbid origin by the sufferer from them. While most of de Monteyel's conclusions are justified, he has failed to differentiate hypochondriac ideas of being insane, and cases of healthy conceptions from the condition designated as self-recognized insanity.

PURE MALEVOLENCE.—F. H. Bradley (*Mind*, July, 1883) discusses pure malevolence, and his analysis has a bearing on the question of moral insanity. He finds that "pure" malevolence does not exist; that malevolence usually arises from motive.

J. G. KIERNAN, M.D.

d.—THERAPEUTICS OF THE NERVOUS SYSTEM.

THE TREATMENT OF HYSTERIA, NEURASTHENIA, AND SIMILAR GENERAL FUNCTIONAL NEUROSES.—Dr. V. Holst has written a monograph upon this subject, which, though it contains nothing absolutely new, is a very instructive contribution to neurological therapeutics. Stuttgart, Ferd. Enke.

THE TREATMENT OF OVARIAN PAIN IN HYSTERIA.—At the

meeting of the French Association for the Advancement of Science (Medical Section), in Rouen, September, 1883, Dr. Apostoli made a communication upon the above subject. His method of treatment consisted in applying faradic electricity to the uterus by means of his "double uterine excitor." Both poles of the battery were in multipara introduced into the uterus; in virgins they were applied to the neck. A current of gradually increasing strength was employed. The average duration of the séance was ten minutes. In some cases one pole was applied to the uterus, the other to the hypogastric region.—*Revue médicale*.

UPON HYSTERIA AND ITS TREATMENT.—Liebermeister has written a careful monograph upon this subject. He looks upon hysteria as a psychosis affecting chiefly the lower or emotional mental sphere. He especially insists upon the importance of psychical treatment. It is easy to recommend psychical treatment, but not so easy to apply it in private practice.—*Volkman's klin. Vortr.*, No, 236, 1883.

LARGE DOSES OF CHLORAL IN CHOREA.—Mosler relates his successful experience with chloral in severe and obstinate forms of chorea. Two grammes within an hour were given. Similar good results have been obtained by others. Frerichs has given doses of five grammes; Bouchut, 3 grammes daily for twenty-seven days; Verdallé ninety grammes in eleven days to a girl eleven years old. Gairdner had a case in which four grammes were given by mistake to a girl eight years of age. After some toxic symptoms, great improvement in the disease resulted.—*Zeitsch. f. klin. Medicin*;—*Memorabilien*, 1883, 5 Hft.

CHOREA TREATED BY NITRITE OF AMYL.—Dr. Attilio Tosoni, of the civil hospital at Brescia, gives a review of the therapeutics of chorea, and reports the history of an obstinate case in a girl of sixteen, which finally yielded to fifteen inhalations of nitrite of amyl.—*Annali universali di medicin. e chirurg.*, vol. 265, fasc. 793, 1883.

NOTHNAGEL ON THE TREATMENT OF CHOREA.—In the course of a clinical lecture on chorea, Professor H. Nothnagel remarked that when the disease followed articular rheumatism, salicylate of soda was given; but this treatment had to be pursued empirically and carefully, as nothing was yet known of the nature of the disease. Opiates had no effect, neither had Calabar bean. Nowadays potassic bromide was almost always given, but without any good result. As calmatives, and for the purpose of procuring sleep, morphia and chloral might be given. He had convinced himself by numerous experiments that propylamine was useless. Arsenic, in the form of Fowler's solution, was still the most effective remedy. It could be given by itself or in water. He sug-

gested the following : \mathcal{R} Liq. Fowleri, grm: v ; aq. destill., grm. xv. M. Five drops to be given in a tumbler of water immediately after meals, and the dose to be increased by three drops every day until it reached thirty drops, after which it was to be slowly diminished. The constant current was another effective remedy in chorea, combined with tepid bathing, or the application of ice-bags to the spine.—*Medical Press and Circular*, Aug. 29, 1883.

HYOSCYAMINE IN ACUTE MANIA AND MELANCHOLIA.—At the meeting of the Canada Medical Association, in September last, a discussion took place upon the value of hyoscyamine in the treatment of mental disorders. Dr. Metcalf, of Kingston, said that, used hypodermically, it acts more quickly and surely than any other narcotic. A full hypodermic dose is gr. $\frac{1}{10}$ for an adult male and gr. $\frac{1}{12}$ for an adult female. Maniacs require larger doses than melancholics. Hypodermically, it usually acts in twenty minutes; by mouth, in about an hour. A reason for giving it hypodermically is, the dose is much smaller, which is a consideration, as it is very expensive. It should be given once a day, the dose to be increased slightly by use. It is said to impair the appetite, but Dr. Metcalfe doubts this. He had not seen any increase in the quantity of urine, as is usually stated. Dr. Hurd, of Pontiac, Mich., Dr. Clarke, of Toronto, and Dr. Troutman, of New York, commended the drug highly in mania and melancholia.—*Canada Med. and Surg. Jour.*, Sept., 1883.

THE ACTION OF ERGOTA SECALIS IN DELIRIUM TREMENS.—A writer in *Wratsch*, 37, 1882, says : After the use of 1 to 1½ grains of ergotin the delirium ceases in all ordinary cases of mania potu. Author thinks the effect is brought about by the action of the ergotin on the vessels of the brain.—*Ther. Gazette*, July, 1883.

THE TREATMENT OF MÉNIÈRE'S DISEASE.—Dr. Alan Reeve Manby writes : Mild cases of labyrinthine pressure, or, as called by Dr. Woakes (*Transactions of the International Medical Congress*, vol. ii, page 81), "Paresis of the Lower Cervical Ganglia," are not uncommon, and frequently yield to purgatives and tonics ; but where the lesion is inflammatory, or apoplectic, as in true Ménière's disease, counter-irritation with biniodide of mercury seems to promise the best results.—*British Medical Jour.*, Feb. 10, 1883.

CURE OF ACUTE BASEDOW'S DISEASE BY GALVANISM.—The foregoing is the title of a case reported by Hedinger, of Stuttgart. The patient, a married woman, aged forty-four, previously healthy, was attacked with the triple symptoms of exophthalmic goitre. Within two years the disease had progressed so rapidly that the patient's life was despaired of. Hedinger applied galvanism—at

first daily, then with intermissions. At the end of eight months she was nearly well. No peculiar methods of applying the electricity were used. The currents employed were mild.—*Corresp. Blatt des Würtl. arzt. Landesver.*, 1883, No. 17.

TREPHINING FOR HEMIPLEGIA AND EPILEPSY.—Dr. Demons (*France médicale*) read before the Société de Chirurgie, a report of an unusual operation. A man had two years before fallen upon his head and received a scalp-wound on the right side; he was unconscious for a time, and subsequently he had a crossed paralysis of the left arm and the right leg, which persisted for five months. He then became well, and remained so until last April, when he had an outbreak of epilepsy, the convulsions recurring every fifteen minutes for five or six days; he then became hemiplegic of the entire left side; his intelligence was also obscured.

In the absence of any local indication of depressed fracture, the site of the operation of trephining was selected opposite the middle of the fissure of Rolando. The periosteum being lifted up, a fracture was detected about an inch long; upon this the crown of the trephine was placed. The dura mater was slightly thickened; in the arachnoid he found and removed a small tumor formed by a hard substance; the subjacent cerebral surface was a little roughened. Following the operation, the hemiplegia and convulsions disappeared; there only remained some loss of tactile sense in the left hand, which had persisted since the accident. Success was attributed to antiseptic measures and closure of the wound.

In the discussion, M. Lucas Champonnière said that cases of trephining where there is nothing to indicate the site of the lesion on the surface of the cranium are rare, and that the above is, therefore, an instructive case; he believed that the operation, however, was indicated, even had a fracture of the skull not been found. He also referred to a case of trephining for traumatic epilepsy, nine years ago, in which the cure had been permanent.—*Cincinnati Lancet and Clinic.*, Sept. 8, 1883.

TREPHINING FOR EPILEPSY.—In an address delivered by Dr. J. A. MacDougall, some of the statistics regarding the value of trephining for epilepsy were collected; the records are as follows:

Collected by	Cases of Epilepsy Trephined.	Mortality.	Cured.	Relieved.	Not Relieved.
Eccheverria	148	28	93	18	9
Walsham	26		20		6
Russell	50	6	24	4	10 no report.
Billing	72	16	42	10	4
Totals	296	50	179	32	29

The totals thus given do not represent the results which might be obtained by the more careful methods of modern surgery.—*Edinburgh Med. Jour.*, Oct., 1883.

MORTIMER GRANVILLE'S PERCUTEUR.—Dr. W. Carter states that Dr. Granville's percuteur for the relief of pain "has not infrequently failed in his hands to do any good." He has found it to relieve very quickly, however, certain cases of toothache and tic. He relates a very striking case of sudden amblyopia in an apparently healthy man, aged 45. The loss of vision was preceded and accompanied by intense headache and pain in the eyeballs. No evidence of any organic disturbance in the eye was discoverable. Treatment with mercury, iodides, and antiphlogistics, did no good. Finally the percuteur was applied to the eyeballs for five minutes daily to rouse up the dormant function. Improvement in vision soon began, and in four or five weeks the man was nearly well. But he was then found to have a beginning cataract. Dr. Carter is inclined to think that the use of the percuteur may have had something to do with producing this.—*Liverpool Medico-Chirurgical Journ.*, July, 1883.

ON THE USE OF NITRO-GLYCERINE IN PARAPLEGIA.—Dr. W. Carter reports the case of a man, aged 55, who, six weeks before treatment, began to suffer from coldness in the feet and legs, followed by paralysis. The patella-reflex was present. [The case is incompletely reported.] Owing to the patient's complaining so much of the coldness in his lower extremities, he was placed upon nitro-glycerine, \mathfrak{M} iij of the 1 % solution. He then rapidly improved and eventually recovered.

Dr. Carter has had good results from nitro-glycerine in a case of spastic spinal paralysis with coldness of extremities.—*Liverpool Medico-Chirurgical Journ.*, July, 1883.

THE MECHANICAL TREATMENT OF NEURALGIA.—Dr. E. Rasori uses the tuning-fork in the treatment of neuralgic pains, applying it while vibrating, over the course of the painful nerves. The instrument was applied for from twenty to forty minutes, when the patient was generally relieved without further treatment. During the neuralgic attacks one of the women had suffered from vomiting, but after the relief from the application she was troubled no more in this way.—*Bolletino della Societa Hancisiana, Roma*.

THE ICE-CAP IN TIC DOULEUREUX.—Dr. R. G. Simpson reports a case in which the ice-cap applied over the painful part gave the greatest relief in tic douleureux. Morphine in large doses had previously been given without avail.—*Cincinnati Lancet and Clinic*, Oct. 20, 1883.

OSMIC ACID IN THE TREATMENT OF NEURALGIA.—The action

of osmic acid upon nerve tissue suggested to G. Neuber its use hypodermically in neuralgia. Two cases of trigeminal neuralgia, and one case of sciatica were experimented upon. In two cases there was recovery, in one case improvement. In one case there was injected in three months about 3 centigrammes of osmic acid in solution, without evil results.—*Mittheilungen aus der chirurg. Klinik*, Kiel, Bd. i, p. 19.

CROTON CHLORAL IN TRIGEMINAL NEURALGIA AND HYSTERIA.—Dr. C. J. Fox reports excellent results from the use of croton chloral in seventeen cases of neuralgia. He gives four grains every two hours until the pain is relieved. He finds it very useful also in hysterical convulsions.—*Edinburgh Med. Journal*.

TINCTURE GELSEMII IN INTERCOSTAL NEURALGIA.—Gelsemium has for some time had considerable repute in neuralgia, but the exact indications for it have not yet been formulated. Dr. J. Chéron thinks it is almost a specific in that form of left-side pain from which many women suffer, and which is considered to be an intercostal neuralgia. He gives from fifteen to twenty-five drops of the tincture daily, applying at the same time some slight local counter-irritation.—*Rev. méd. chir. des mal. des femmes*, Aug. 5, 1883.

RHUS TOXICODENDRON IN THE TREATMENT OF SCIATICA.—Dr. Thos. Gifford recommends highly the tincture of rhus toxicodendron in the treatment of sciatica. He gives two drops morning and night. The drug acts best in those cases where the pains are severe and occur at night, and when they are accompanied by much motor disturbance. The drug is used by the homœopaths for this disease.—*Cincinnati Lancet and Clinic*, Sept. 29, 1883.

THE ETHER DOUCHE FOR LOCAL PAIN.—Dr. C. H. Hughes states that for the past ten years he has employed ether lavements in all painful surface affections with great satisfaction. They will cure some neuralgias and relieve all. The ether should be poured freely upon the affected part until relief is obtained. In cases of trigeminal neuralgia care should be taken to keep the ether from getting into the eyes and ears. No better agent, says Dr. Hughes, can be employed for cephalalgia or for acute muscular tremor. It may be used upon the head and spine in chorea.—*Phila. Medical Times*, Sept. 8, 1883.

CLINICAL RESULTS OF NERVE-STRETCHING.—Dr. Vincenzo Omboni, of Cremona, gives an analysis of 512 cases of nerve-stretching collected by himself. The list embraces over one hundred cases more than were collected by Dr. W. J. Chandler (*Medical Record*, vol. xxii, 1882). A careful report upon Omboni's

paper is given in the *Medical News*, Oct. 27, 1883. The cases collected show what has already been quite well determined, that in peripheral, painful, and spasmodic affections nerve-stretching is often successful, but that in central nervous diseases it is much less efficient. Thus in 222 cases of neuralgia, there were 143 cures, 62 ameliorations, 16 failures with 1 death. In 149 cases of central nervous disease, there were 5 cures, 100 ameliorations, 27 failures with 17 deaths, 10 of these being ascribable to the operation.

OCCIPITAL NEURALGIA OF 'THIRTEEN YEARS' DURATION CURED BY STRETCHING THE INTERNAL OCCIPITAL NERVE.—Dr. Gillet de Grandmont reports a case of the above kind. The patient, a man 43 years old, had suffered, with short intermissions, for thirteen years, from neuralgia of the internal occipital nerve. —*Journal de médecine de Paris*, Sept. 1, 1883.

COMPARATIVE RESULTS OF STRETCHING AND RESECTING THE TRIGEMINAL NERVE FOR NEURALGIA.—T. Dumont reports two cases of trigeminal neuralgia treated by nerve-stretching, and five treated by resection. Of the former two cases, one was a neuralgia of the infraorbital, the other of the inframaxillary nerve. The infraorbital neuralgia was relieved for a year, the inframaxillary continued relieved for three years. Dumont thinks that stretching is a preferable measure to resecting.—*Deutsche Zeitschr. für Chirurgie*, 1883, Bd. xix, Hft. 1.

THE FOLLOWING CONTRIBUTION TO THE STATISTICS OF NERVE-STRETCHING is made by Dr. Luigi Meaini, of Bologna :

	Cas.	Success.	Failure.	Amelio- rations.	Results uncertain.	Deaths.
Neuralgiæ	50	42	3	1	3	1
Neurites	3	3	0	0	0	0
Contractures	1	0	0	1	0	0
Diseases of nervous centres .	10	0	3	4	0	3
Paralyses	1	0	0	1	0	0
Tetanus	7	2	1	0	0	4

—*Bullet. del scienze del. soc. med.-chir. de Bologna*, No. 3, 1883.

THE REPORT OF A CASE OF NERVE-SUTURE of the musculo-spiral, six months after its complete division, is given in *The Lancet*. Twelve months after the operation there was complete restoration of function to the nerve.—*Lancet*, Aug. 4, 1883.

THREE CASES OF SCIATICA TREATED BY NERVE-STRETCHING are reported by Dr. Robert P. Robins, of Philadelphia. All three made a good recovery, and had continued well till the time of writing.—*The Medical News*, Sept. 29, 1883.

THE EFFECTS OF THE SUBCUTANEOUS STRETCHING OF THE SCIATIC NERVE IN TABES.—Lépine discusses the effects of the above-named procedure. Its results are uncertain. The best that can be said is that it is without danger.—*Compt. rend. hebdom. des séanc. de la soc. de biol.*, Paris, 1883, No. 10, p. 194.

TETANUS SUCCESSFULLY TREATED BY CURARE AND CHLORAL.—Dr. Hjorst reports the history of a case of tetanus occurring in a child three years of age, the result of a crush of the leg. Morphine and chloral at first gave relief, but the disease continued, and on the twenty-fifth day the case seemed hopeless. It was then decided to give hypodermically an injection of curare .001 grm. (gr. $\frac{1}{4}$), which was repeated at the end of three hours increased to .002 grm. (gr. $\frac{1}{2}$), which gave decided relief. The next morning an injection of .0015 grm. ($\frac{1}{8}$ gr.) was given; the patient was decidedly more comfortable; chloral was again given by the rectum at night. The next day patient was much better and had spontaneous diuresis; convalescence gradually became established.—*Norsk Magaz. für Lægeev.*, B. xii, Heft 8; *Centralblatt f Chirurg*, No. 22, 1883.

SERPENT VENOM AS A REMEDIAL AGENT IN TETANUS.—Dr. A. O. Ameden relates a snake story. A healthy man of twenty-five years received a punctured wound of the foot, which was followed by tetanus. All other remedies failing, Dr. A. procured some serpent venom from the rattlesnake. He moistened the point of his hypodermic syringe with this and inserted it beneath the skin. The symptoms rapidly ameliorated but returned in thirty hours, when a fresh injection was made. The patient finally recovered.—*The Medical News*, September 29, 1883.

UPON THE APPLICATION OF THE ACTUAL CAUTERY IN THE TREATMENT OF SPASM.—Dr. Luigi M. Petrone (who has cured old cases of anterior poliomyelitis with strychnine) reports his success with the actual cautery in seven cases of clonic and tonic spasm. Petrone applies the thermo-cautery generally along the spine at about the origin of the affected nerves. He makes deep cauterizations four to six inches long, then applies ice for an hour. After the eschar has fallen off, he applies an irritating ointment and excites suppuration. The cases treated were those of trismus (1), facial spasm (1) (here the cautery was applied over to the cervical spine), torticollis (3), of the median nerve (1), of the sciatic (1). Similar cases reported by Busen and Westphal

are referred to.—*Arch. ital. per le mal. nerv. ed. alien. mentale*, xx, 1 e 2, p. 55, 1883.

THE TREATMENT OF TREMOR.—According to M. Feris, of Brest, veratria has the property of causing various kinds of tremor to disappear, and that in the space of ten days or a fortnight. It has been employed in disseminated sclerosis, alcoholism, and adynamic states. The dose is four pills per diem, each containing half a milligramme of the alkaloid.—*Medical Record*.

STRYCHNINE IN INFANTILE PARALYSIS.—Dr. Luigi Petrone, has successfully used strychnine in anterior poliomyelitis in children. He reports two cases of several years' standing rapidly cured by giving pills of strychnine (gr. $\frac{1}{2}$) twice a day.—*Gaz. med. ital. provincie venele*, No. 22, 1883.

FAILURE OF SPECIFIC TREATMENT IN LOCOMOTOR ATAXIA.—At a meeting of the Société Médicale des Hôpitaux, in July, M. Dujardin-Beaumetz called attention to the fact that specific medication, almost without exception, fails in the treatment of tabes, even when a history of syphilis exists. M. Fournier had seen one or two successful cases, but the speaker had seen none. Yet the per cent. of syphilitic ataxics was said to be from eighty-five to ninety.—*L'union médicale*, p. 595, 1883.

THE TREATMENT OF TABES DORSALIS.—M. Hardy has an article upon this subject. In the first rank of remedies he places potassium iodide and nitrate of silver, which he uses alternately. All other internal remedies, he thinks, are valueless. Of external remedies he values baths first, revulsives next. Electricity is not to be depended upon.—*Gazette des hôpitaux*, No. 84, 1883.

DIVISION OF THE MEATUS URINARIUS FOR THE RELIEF OF PSEUDO-LOCOMOTOR ATAXIA.—Dr. F. N. Otis reported the history of a patient suffering from incontinence of urine and motor disturbances in the lower extremities. The case had been diagnosed one of locomotor ataxia by a prominent New York neurologist. Dr. Otis recognized contraction of the meatus urinarius, and divided it, with the effect of producing almost immediate relief from the urinary symptoms. There was no history of syphilis, but he gave the iodide of potassium, and within a short time the man began to show decided improvement in the motor symptoms, and was at present almost perfectly well, and able to attend to his business as a gentleman farmer. Dr. Otis remarked that he had never failed in such cases to produce benefit by the division of the strictured meatus if it existed. The case reported was probably not one of locomotor ataxia.—*N. Y. Medical Journal*, Oct. 20, 1883.

TANNATE OF CANNABIN AGAIN.—This drug, which was highly recommended by Fronmüller as a mild and harmless hypnotic, has been tried in thirty cases by Lublinsky, who reports it weak and uncertain in its action. To this unfavorable experience Fronmüller replies by asserting that it was not given in proper doses, or to the right class of patients, or else he did not get a good preparation. F. uses Merck's cannabin tannicum, beginning with a dose of gr. v or gr. vii.—*Memorabilien*, v Hft., 1883.

CHLORIDE OF METHYLENE, AND A NEW ANÆSTHETIC MIXTURE.—Ten cases of death from the use of chloride (usually called bichloride) of methylene have now been reported. Dr. F. Junker, in commenting upon this anæsthetic, states that it acts very much like a mixture of four parts chloroform and one part methylic alcohol.—*Brit. Med. Journal*, July 21, 1883.

PHOSPHATE OF CODEIA.—Herr E. Merck, of Darmstadt, at the instance of Professor Hegar, of Freiburg, has succeeded in producing a phosphate of codeia which has the great merit of being soluble in four parts of water, so that it can be used subcutaneously. It crystallizes in small four-sided columns, is white, rather bitter to the taste, and resembles the sulphates and hydrochloratis of the same base. In its action it resembles morphia, except that it is milder, and the symptoms of intoxication are less pronounced. The dose required is about double that of the salts of morphia. No marked local disturbances followed the subcutaneous employment of the drug.—*Med. Press and Circular*, Aug. 27, 1883.

BROMIDE OF NICKEL.—Dr. DaCosta advocates the use of a new salt (bromide of nickel) in epilepsy and other diseases where the bromides are indicated. He claims that it is equally efficacious in much smaller doses. He gives doses of five grains, in form of pill or in syrup, three times a day, gradually increasing the dose to ten grains, three times a day.—*Medical News*, Sept. 20, 1883.

CANNABIS INDICA AS A SEDATIVE.—Dr. William Strange recommends cannabis Indica as a nervous sedative for the relief of anxiety and restlessness; but he thinks that it is seldom given in sufficiently large doses. He recommends a grain of the extract, or from twenty to thirty minims of its tincture. It may be advantageously combined with bromide of potassium.—*Brit. Med. Journal*, July 7, 1883.

JAMAICA DOGWOOD.—Dr. Otto Seifert recommends the liquid extract of the rind of the root in cases of "spinal irritation," and in the treatment of chronic severe cough, where opium can not be

prescribed. Von Firth has found the extract of value in patients suffering from delirium tremens, even where other narcotics, such as chloral, bromide of potassium, and opium, have failed. Seifert gave some to healthy individuals, and found that it was followed by marked soporific effects and some dilatation of pupil; but no change was observed in the pulse or temperature, nor was there any salivation or increase of perspiration. Severe coughing at night in cases of phthisis was greatly relieved by the administration of .25 of a gramme of the solid extract.—*Berlin. klin. Wochenschr.*, No. 29, 1883.

PIPERIDIN AS AN ANÆSTHETIC AND SEDATIVE.—W. Fliess has shown that in cold-blooded animals (frogs) piperidin, in doses of one to two milligrammes, causes complete sensory paralysis with abolition of reflexes, the motor nerves not being at all affected. The peripheral end-organs are first affected, then their nerves, then their nerve-centres. This anæsthetic effect was much less marked in warm-blooded animals (rabbits), though some diminution of sensibility was noticed. The author reports the history of an obstinate case of vaginismus that was cured by the hypodermic injection of 0.02 grammes of piperidin.—*Archiv f. Physiologie*, 1883, p. 190.

PARALDEHYDE.—Dr. Jos. Peretti reports his experience with this drug. He gave it to four healthy persons, and to thirty-two patients suffering from various forms of insanity. Peretti concludes that paraldehyde is not a specific against any of the morbid psychoses, nor a good quieting agent in conditions of chronic maniacal excitement. It is, however, an excellent hypnotic, and a useful remedy in the mild depressive conditions. Its advantages are its safety, its non-cumulative action (one patient took 179 grammes in forty-two days), and absence of preliminary exciting stage and of subsequent bad effects.—*Berlin. klin. Wochenschr.*, No. 40, 1883.

METALLO-THERAPY.—Dr. Grace Peckham discusses the various theories put forth to explain the facts of metallo-therapy. Evidence is also brought to show that metallo-therapy forms an actual tangible addition to therapeutical science.

Dr. Peckham thinks that the theory of expectant attention must be set aside as inadequate to explain the phenomena of metallo-therapy. The electrical theory, the thermo-electrical theory, the "theory of molecular motion and change of rhythm," are all only more or less plausible hypotheses.—*Archives of Medicine*, Oct., 1883.

A NEW OPERATION FOR THE CURE OF MASTURBATION.—Dr. Timothy Hays reports three cases in which he has relieved masturbation by resecting the spermatic ducts.

The operation, which was the same in all three cases reported, was as follows :

An incision midway between the external inguinal ring and the testis laid bare the duct, from which a half inch was resected, and the slight wound closed by sutures.

By this operation, leaving behind it no deformity of the genitals, he succeeded in improving the mental and physical condition of his patients, while the sexual appetite was as effectually destroyed as by castration.—*Boston Med. and Surg. Jour.*, Aug. 9, 1883.

SULPHATE OF DUBOISINE IN THE TREATMENT OF EXOPHTHALMIC GOITRE.—M. Desnes reports three cases of exophthalmic goitre treated by the subcutaneous injection of the neutral sulphate of duboisine (one half to one milligramme daily, according to the tolerance of the individual). In three cases the amelioration has been most marked : the projection of the eyeballs decreased ; the palpitations became less severe ; the general health improved ; and the throbbing at the thyroid vessels became less. On the cessation of treatment the amelioration diminished. The experiments have not been sufficiently numerous as yet to determine whether the cure is permanent. In two cases the remedy had to be stopped, the patients complaining of a feeling of intoxication, cramps, and formication in the gluteal region and at the back of the thighs, etc.—*Glasgow Medical Jour.*; *Weekly Med. Rec.*

IRRITABLE BRAIN CURED BY REST AND HYDROPATHY.—Mr. Charles B. Francis relates the history of an Indian medical officer, aged thirty-three, who suffered from "irritable brain," or, as it would be called here, cerebral hyperæmia or brain exhaustion. The case was not relieved until he had given up all kinds of work and left India. Mr. Francis says :

The case is encouraging, as showing the value of what is so frequently lost sight of in the treatment of disease, viz., physiological rest ; and that if this rest be insisted upon, good results will generally follow. No treatment in such a case as this, however judicious, could be expected to succeed without it. This kind of "head" is not at all uncommon in India, especially after sunstroke ; and the most economical remedy, I believe, is to leave India at once for a prolonged sojourn at home. Lord (when Sir John) Lawrence used to divide his executive officers in the Punjab into two classes—men with brains but no stomachs, and men with stomachs but no brains. The extreme heat of the Punjab, co-operating with much mental labor, is apt to induce a train of symptoms in the brain similar to those from which F. C. suffered ; and persons so suffering are said to have the "Punjab head"—a man feels that he *has* a head. It may here be stated broadly, that those who are at all liable to "go in the head" should avoid India.

TREATMENT OF MENINGITIS WITH IODIDE OF POTASSIUM AND EXTERNAL APPLICATIONS OF CROTON OIL.—Dr. Vovard, of Bordeaux, has published a series of cases of meningitis treated very successfully with iodide of potassium internally and croton oil externally. The oil—the head of the child being previously shaven—was laid on with a brush and the head covered with a bonnet of oil-silk, which prevented the absorption of the oil by the pillow. The *croton tiglium* was renewed three times a day until an abundant suppuration took place, and then an irritating ointment was applied, which kept it up for several days. The cases cured by this means never suffered a relapse.—*Medical Press and Circular*, May 23, 1883.

ETHER SPRAY IN FACIAL NEURALGIA.—Dr. A. M. Cartledge, reports excellent results in the treatment of facial neuralgia by the above method—which is not a new one.

His mode of operation is as follows :

After protecting the eye with a piece of oil-silk or cloth, direct a spray of ether upon the part affected until its temperature is down to the freezing-point of water—say for eight minutes—which will generally suffice. To generate the spray he uses Richardson's atomizer.

The application is generally grateful to the patient, and has given complete and permanent relief in six of ten cases where it was used. It greatly mitigated the suffering in the remaining four.—*Medical Herald*, May, 1883.

THE QUESTION OF TREPHINING IN INJURIES OF THE HEAD.—Dr. H. B. Sands reports seven cases in which trephining was performed for injuries of the head—four times for compound fracture, with depression ; once for simple fracture, with depression ; twice for epileptic and paralytic affections following injury.

Of the four cases of compound fracture, one was a very severe one, the patient being comatose until death. The other three cases were of a mild character, with no especial head-symptoms. They all recovered.

The case of simple depressed fracture was very severe, the patient being comatose and hemiplegic, and dying shortly after the operation. Dr. Sands recommends trephining in cases where the depression is marked, but of limited superficial extent, and in punctured fractures where the internal table is extensively splintered or depressed.

The inference is that surgeons are still in a kind of happy-go-lucky state as regards trephining for fractures of the skull, the underlying principle being to operate in mild cases, which are most likely to get well any way ; not to operate in severe cases, which are very sure to die under any circumstance.

The sixth case was one of traumatic epilepsy, of nine years'

standing, in a man, aged twenty-six, whose history is somewhat imperfectly given. He had a depression in the right parietal bone. He had had hemiplegia for several months after the injury, and the left hand was still somewhat weak.

Operation, which was recommended as a last resort, produced some relief.

The seventh case is a most instructive one. The patient, a married woman, aged thirty-nine, was struck on the left parietal region, and knocked down. After this, hemiparesis, right facial paralysis, and epileptic attacks appeared. She was trephined over the posterior central convolution. Patient died, and post mortem showed a growing tumor directly under the site of the trephined orifice.—*N. Y. Medical Journal*, April 21, 1883.

DANGERS OF THE BROMIDE TREATMENT OF EPILEPSY.—Dr. Wm. H. Hammond calls attention to possible dangers in the bromide treatment of epilepsy. He has observed that bromism predisposes to lung trouble. In two cases of his, pneumonia supervened upon bromism, and the patients died. In another case cited by Dr. Hammond the patient died from the effects of bromism.—*New York Medical Journal*, March, 31, 1883.

NITRO-GLYCERINE IN EPILEPSY.—Professor Berger states that he has used nitro-glycerine successfully in many forms of headache, but that in epilepsy he could get no good results.—*Breslau. ärzt. Zeitschr.*, No. 8, 1883.

MULLEIN PITH IN EPILEPSY.—Dr. N. J. Sullivan, Canyonville, Oregon, states that a decoction of mullein pith in combination with the usual doses of potassium bromide markedly increases its effects in epilepsy.—*The Druggist*, July, 1883.

ATROPINE IN EPILEPSY.—Dr. Max Weiss urges the use of atropine in the treatment of epilepsy, the especial point being the advantage of giving very large doses. He gradually increases the amount until the patient gets gr. $\frac{1}{6}$ to gr. $\frac{1}{3}$ a day.—*Centralbl. für die Gesamte Ther.*, June, 1883.

UPON THE SYMPTOMATIC TREATMENT OF PARALYSIS AGITANS.—A. Erlenmeyer, admitting that owing to our ignorance of the real nature and cause of paralysis agitans the disease must be treated empirically, describes his experience in a typical case, of the hemiplegic type, which he had under observation for two years. The special symptoms demanding attention were the tremor, insomnia, and hyperidrosis [the distinguished Professor spells it "hyperhydrosis"]. The patient was a sewing-woman, sixty-four years old, and the disease was well developed when first

seen. For the insomnia, which was largely due to the severe tremors, chloral hydrate, in combination with small doses of morphine, were given: chloral hydrate, one half gramme; morphine, one one-thousandth gramme, at night. This secured sleep, but had no effect upon the movements. For the tremors, large doses of valerian and potassium bromide were administered, with the result of producing great improvement. About eight grammes of the bromide in an infusion of valerian were given daily.

Nitrate of silver was prescribed for two months, but with no effect.

Curare given hypodermically in doses of 0.014 to 0.022 grammes, caused great diminution in the tremors. One injection of the larger dose produced effects which lasted about three days. The curare was dissolved in acidulated water.

Galvanization of the brain, kathode to brow, anode to neck, eight cells, one thousand Siemens' units' resistance, was employed, six times a week. The action "was extraordinarily favorable." For the sweating, atropin and ergot were given. This not only checked the hyperidrosis, but had an unexpectedly good effect in lessening the tremors.

Hyoscyaminum crystallis pur. was given in doses of a single pill, containing 0.008 gramme. Improvement did not follow until toxic doses were taken. [At the last meeting of the American Medical Association, Dr. R. W. Amidon reported good results from the use of Merck's hyocyamia.]—*Centralbl. f. Nervenheilk., Psych., u. gericht. Psychopath.*, May 1, 1883.

TREATMENT OF SPINA BIFIDA BY PERIOSTEAL GRAFTING.—Dr. Robert T. Hayes reports a case of spina bifida, in which he successfully removed the fluid and closed the spinal aperture with periosteal grafts from a rabbit.—*Medical Record*, June 16, 1883.

CATARRHAL HEADACHES.—Dr. Richard C. Brandeis calls attention to the catarrhal element in the causation of many headaches. Local treatment of the catarrh. By means of stimulants, sprays, etc., are of course indicated.—*Medical Record*, April 21, 1883.

MENTHOL FOR THE RELIEF OF PAIN.—Dr. D. M. Camman recommends an alcoholic solution of menthol, 3 i to 3 ss, painted over painful parts in cases of facial neuralgia, lumbago, pleurodynia. He finds it a very useful application, acting well when iodine and the ordinary liniments fail.—*Medical Record*, April 28, 1883.

TREATMENT OF BRAIN-EXHAUSTION BY PROLONGING SLEEP.—Dr. G. Leonard Corning, in a suggestive article upon brain-exhaustion, calls attention to the value of prolonging brain-rest,

especially by prolonging sleep. The use of baths, electricity, exercise, etc., is recommended.—*Medical Record*, April 7, 1883.

ÆSCULINE.—This substance, obtained from the Indian chestnut (*æsculus hippocastanum*), has been used in Italy in the treatment of neuralgia. Dr. Balthazar Testa has investigated its physiological properties, and finds that it exaggerates tactile and pathric sensation, and has a stimulating action on the medulla.—*Gaz. internaz. scienze. med.*, 1882, p. 608.

PHYSIOLOGICAL AND THERAPEUTICAL PROPERTIES OF NITROGLYCERINE.—Dr. Henri Huchard read a paper upon the above subject before the Société de Thérapeutique. He reviews the history of the drug, and confirms the experiences of others as to its usefulness in angina pectoris and nervous affections with cerebral anæmia and vertigo.—*Bulletin général de therap.*, April 30, 1883.

THE TREATMENT OF CHOREA WITH LEITER'S COILS.—Galvaqui reports one case of obstinate chorea treated successfully by the application of Leiter's coils to the spine. The treatment occupied fifteen days.—*Gazz. d. Ospit. Memorabilien*, Oct. 15, 1883.

TREATMENT OF TABES WITH THE FARADIC BRUSH.—Fischer of Cronstadt reviews the various recent additions to the therapeutics of tabes, and endorses largely from his own experience the use of the faradic brush as advocated by Rumpf.—*Correspondenzbl. des würtz. ärtz. Landesvereins*, 1883, No. 22.

C. L. DANA.

CORRECTION.—In the number of this JOURNAL for July, 1883, in the abstract of Prof. B. G. Wilder's paper "On some Points in the Anatomy of the Human Brain," read before the American Neurological Association, June 22, 1883, for the word *Vericulum*, in two places on page 533, should be substituted *Vinculum*.—ED.

BOOKS AND PAMPHLETS RECEIVED.

Types of Insanity: An Illustrated Guide in the Physical Diagnosis of Mental Disease. By Allen McLane Hamilton, M.D. New York: William Wood & Co., 1883.

La Folie Universelle et la Science Mentale. Par Ivan Golovine. Paris : H. Lesoudier, 1883.

Our Insane Neighbor ; His Rights and Ours. By W. W. Godding, M.D. Reprint from *American Psychological Journal*.

In Memoriam : Wilbur—Walker. By W. W. Godding, M.D. Reprint, *Alienist and Neurologist*, July, 1883.

Rhythmical Myoclonus. By Grace Peckham, M.D. Reprint, *Archives of Medicine*, April, 1883.

The Internal Capsule of the Cerebrum, and the Diagnosis of Lesions Affecting it. By Ambrose L. Ranney, M.D. Reprint, *Archives of Medicine*, August, 1883.

The Corpora Quadrigemina, etc., etc. By Ambrose L. Ranney, M.D. Reprint, *Medical Record*, August, 1883.

American Neurological Association ; Ninth Annual Meeting. Reported by Wesley M. Carpenter, M.D. Reprint, *JOURNAL OF NERVOUS AND MENTAL DISEASE*, July, 1883.

The Electro-Osteotome, etc., etc. By Dr. Milton Josiah Roberts. Reprint, *Medical Record*, October, 1883.

Possible Cerebral Origin of the Symptoms Usually Classed under "Railway Spine." By G. L. Walton, M.D. Reprint, *Boston Med. and Surg. Journal*, 1883.

Beiträge zur Theorie der Wärmeempfindung. (Aus dem physiologischen Laboratorium der Harvard Universität zu Boston.) Von Dr. W. P. Lombard und Dr. G. L. Walton. Sep.-Abdr. a. d. *Centralblatt f. d. med. Wissenschaften*, 1883, No. 32.

Locomotor Ataxia, Terminating as General Paralysis of the Insane. By Charles K. Mills, M.D., Philadelphia.

Cases of Locomotor Ataxia. By S. G. Webber, M.D., Boston.

Notes on Spanish Asylums for the Insane. By E. C. Seguin, M.D., New York.

Note on the Use of Hydrobromic Acid in Nervous Affections. By C. L. Dana, M.D. New York.

And other reprints, from *JOURNAL OF NERVOUS AND MENTAL DISEASE*, July, 1883.

Opium Addiction Among Medical Men. The Treatment of Opium Addiction. Personal Narrative of Opium Addiction. Clinical Notes on Opium Addiction. Neurotic Pyrexia, with Special Reference to Opium Addiction. The Curability of Opium Addiction. By J. B. Mattison, M.D., Brooklyn, N. Y. Reprints from various journals.

Ueber die Erregung der Gefässnervencentren durch Summation elektrischer Reize. Von H. Kronecker und R. Nicolaides. Berlin, 1883.

Die Irradiationen des Schluckcentrum und ihre allgemeine Bedeutung. Von Dr. S. Meltzer. Berlin, 1883.

The Prevention of Insanity. By Nathan Allen, M.D., of Lowell, Mass.

The Law of Human Increase. By Nathan Allen, M.D., LL.D. Reprinted from the *Popular Science Monthly*, November, 1882.

Arctic Cruise of the Revenue Steamer Corwin in 1881. Medical and Anthropological Notes. By Irving C. Rosse, M.D. Washington, 1883.

Proceedings of the Society for Psychical Research. Vol. I., Parts 1 and 2. London: Trübner & Co., 1882-1883.

Atlantic Journal of Medicine, Richmond, Va. Aug., 1883. Vol. I., No. 1.

The Polyclinic. Vol. I., No. 1. Philadelphia.

Monatshefte für Praktische Dermatologie. Redigiert von Dr. H. V. Hebra, Wien, Dr. O. Lassar, Berlin, und Dr. P. G. Unna, Hamburg. Band II., No. 1., 1883. Probenummer.

Sixth Annual Report of the Managers of the Adams Nervine Asylum. Boston, 1883.

The Forty-fourth Annual Report of the Superintendent of the Boston Lunatic Asylum. For Year Ending April 30, 1883. Boston, 1883.

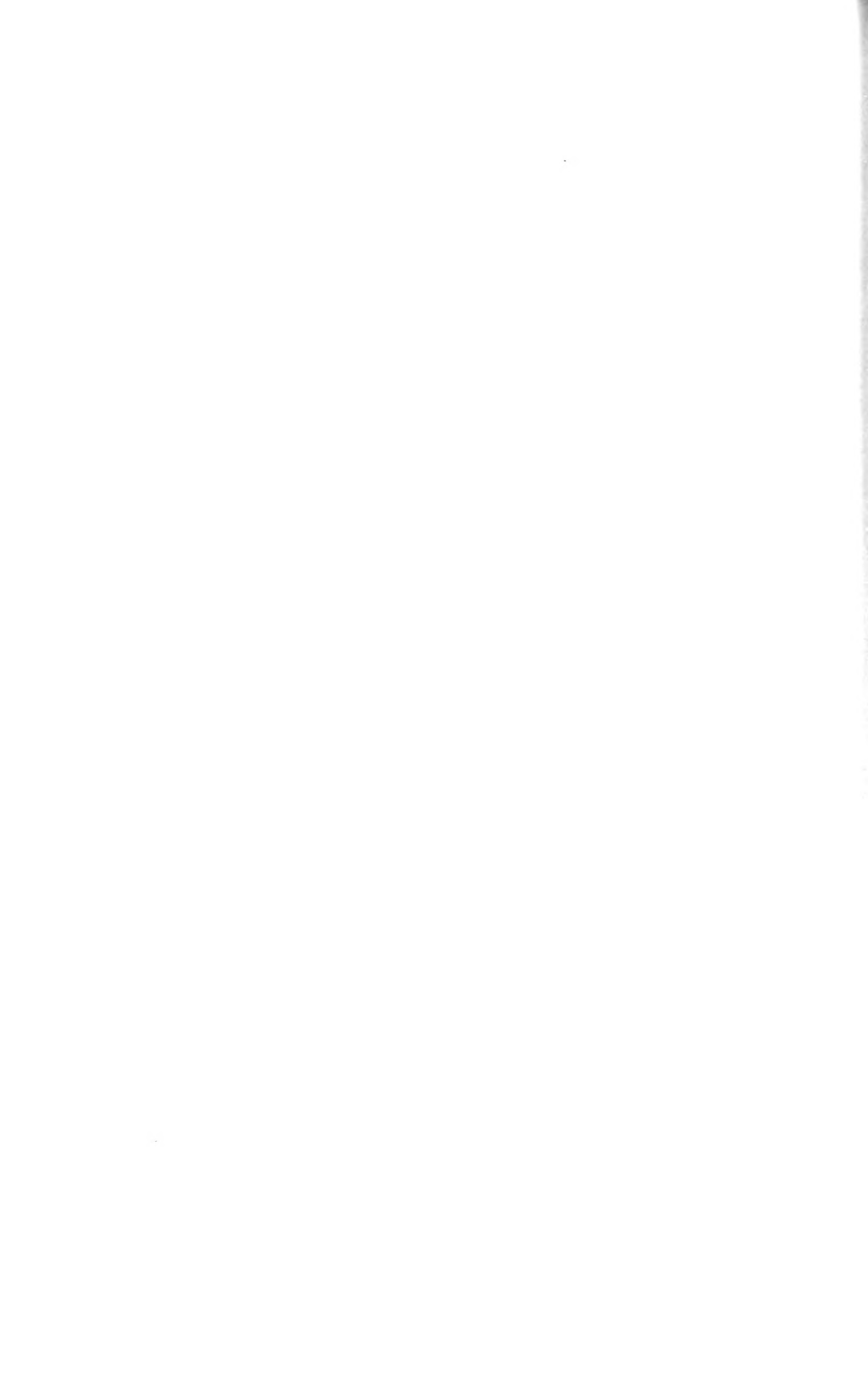
Report of the Commissioner on Education, for the Year 1881. Washington, 1883.

Transactions of the Medical Society of Pennsylvania. Philadelphia, 1883.

The Physician's Visiting List for 1884. Philadelphia: P. Blakiston, Son, & Co. 1884.

The Physician's Daily Pocket Record. By S. W. Butler, M.D. Published at the office of the *Medical and Surgical Reporter*, Philadelphia, 1884.

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